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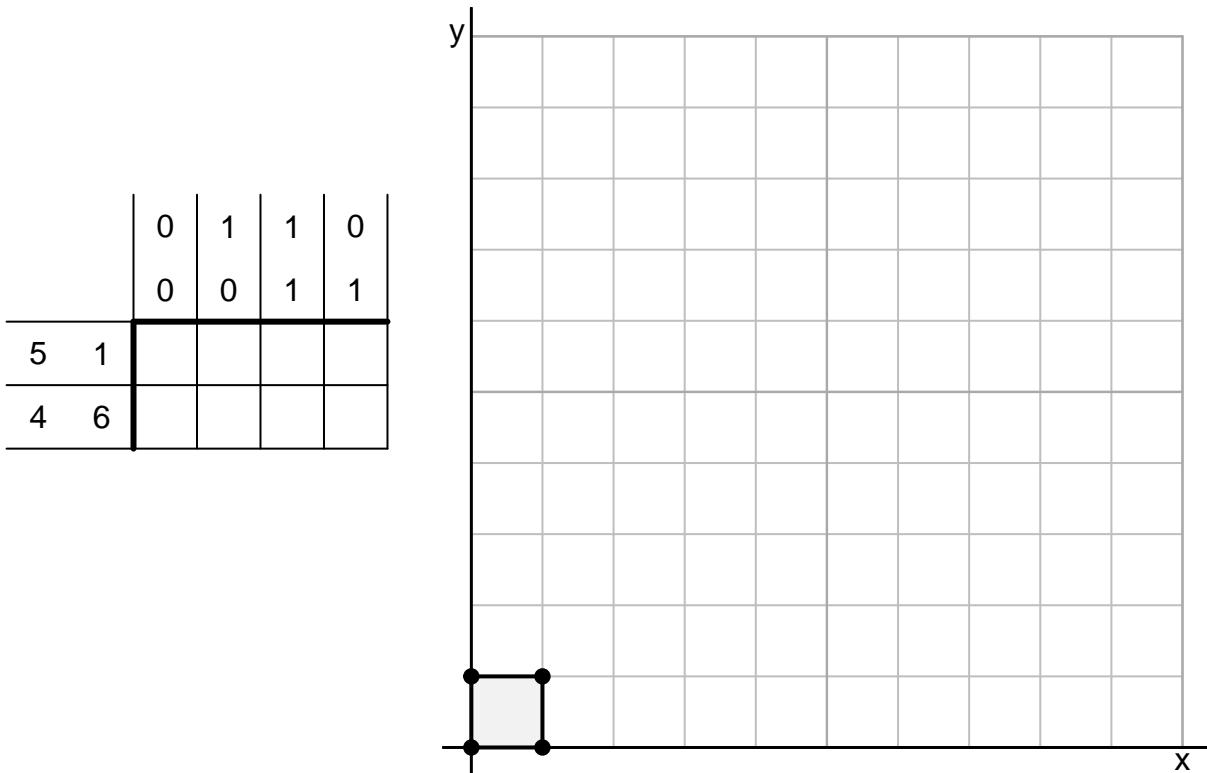
s19 Matrix Exam (practice v101)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 5 & 1 \\ 4 & 6 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

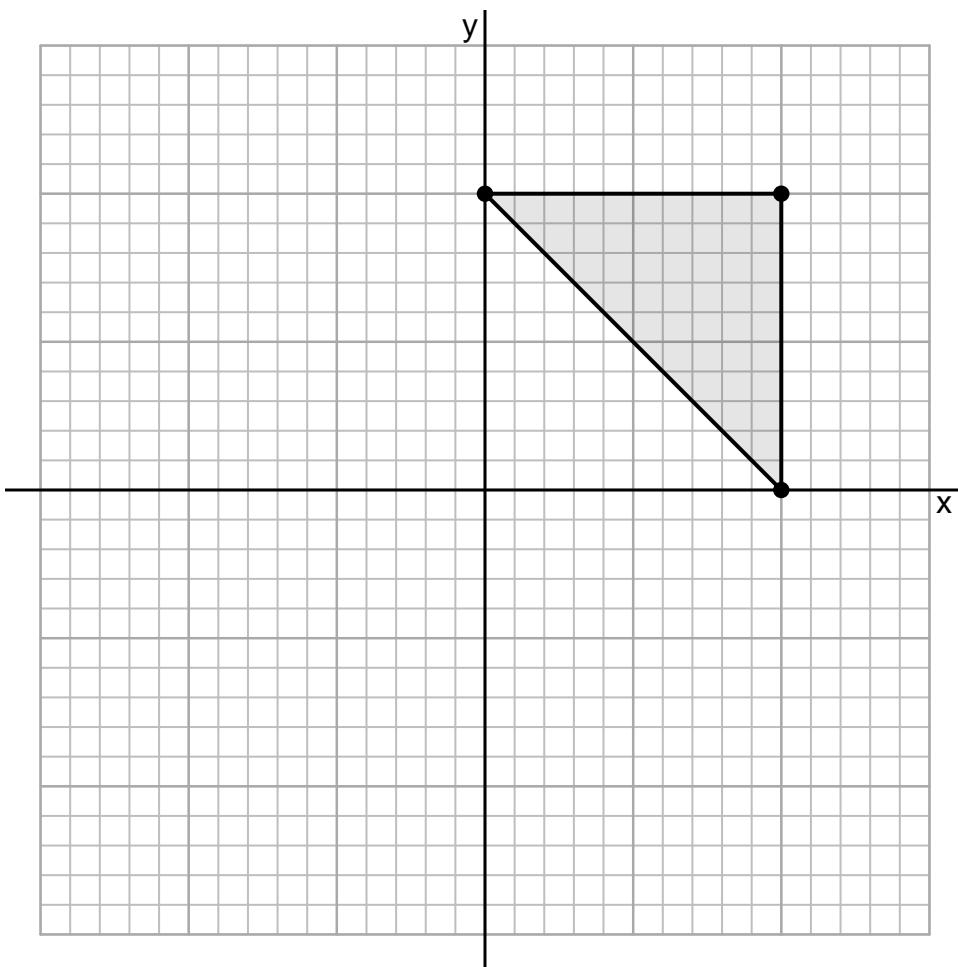


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 10 & 0 & 10 \\ 10 & 10 & 0 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 233.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.6 & -0.8 \\ -0.8 & 0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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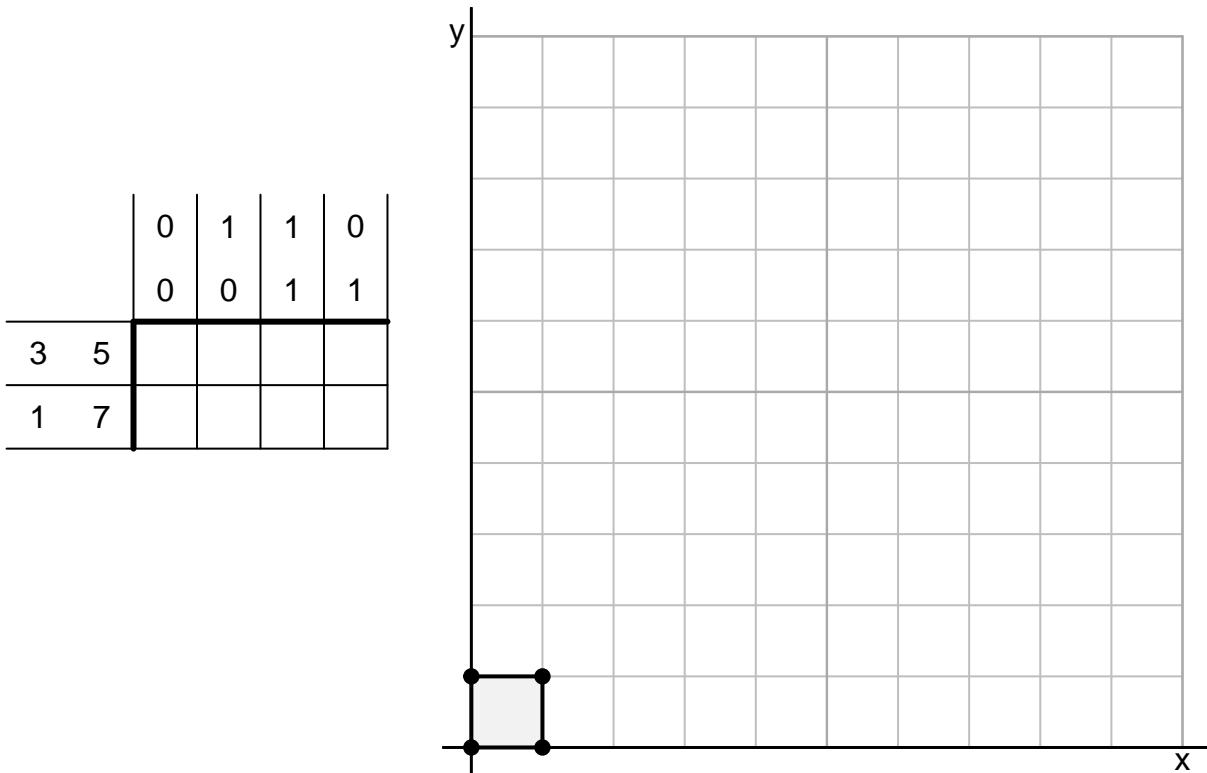
s19 Matrix Exam (practice v102)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 3 & 5 \\ 1 & 7 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

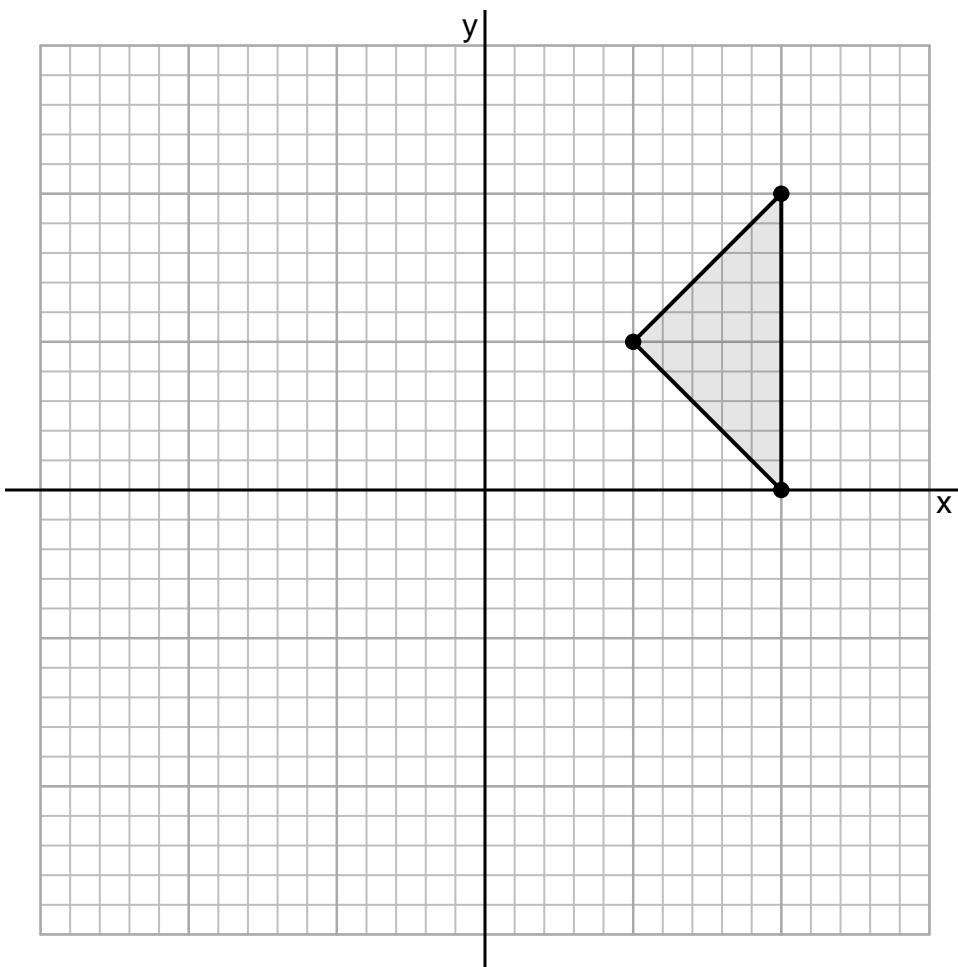


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 10 & 5 & 10 \\ 0 & 5 & 10 \end{bmatrix}$. In order to reflect over the y axis and then rotate by 36.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.8 & -0.6 \\ -0.6 & 0.8 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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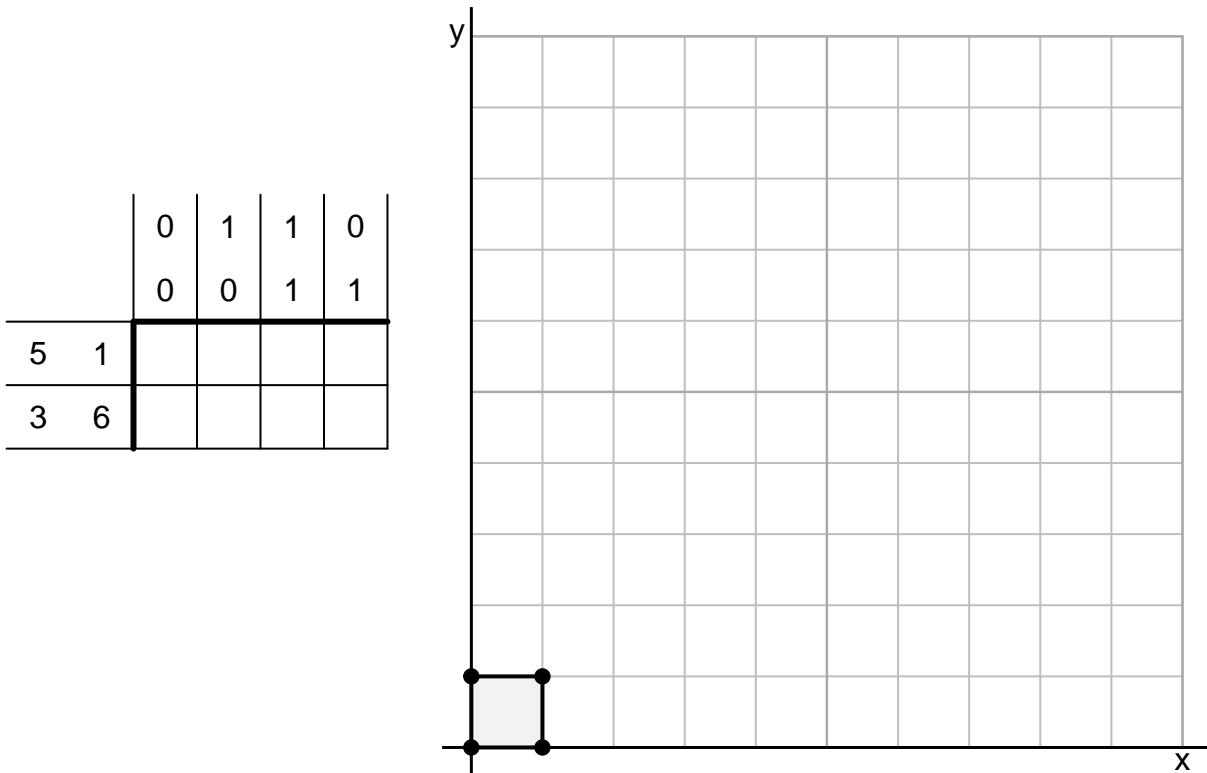
s19 Matrix Exam (practice v103)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 5 & 1 \\ 3 & 6 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

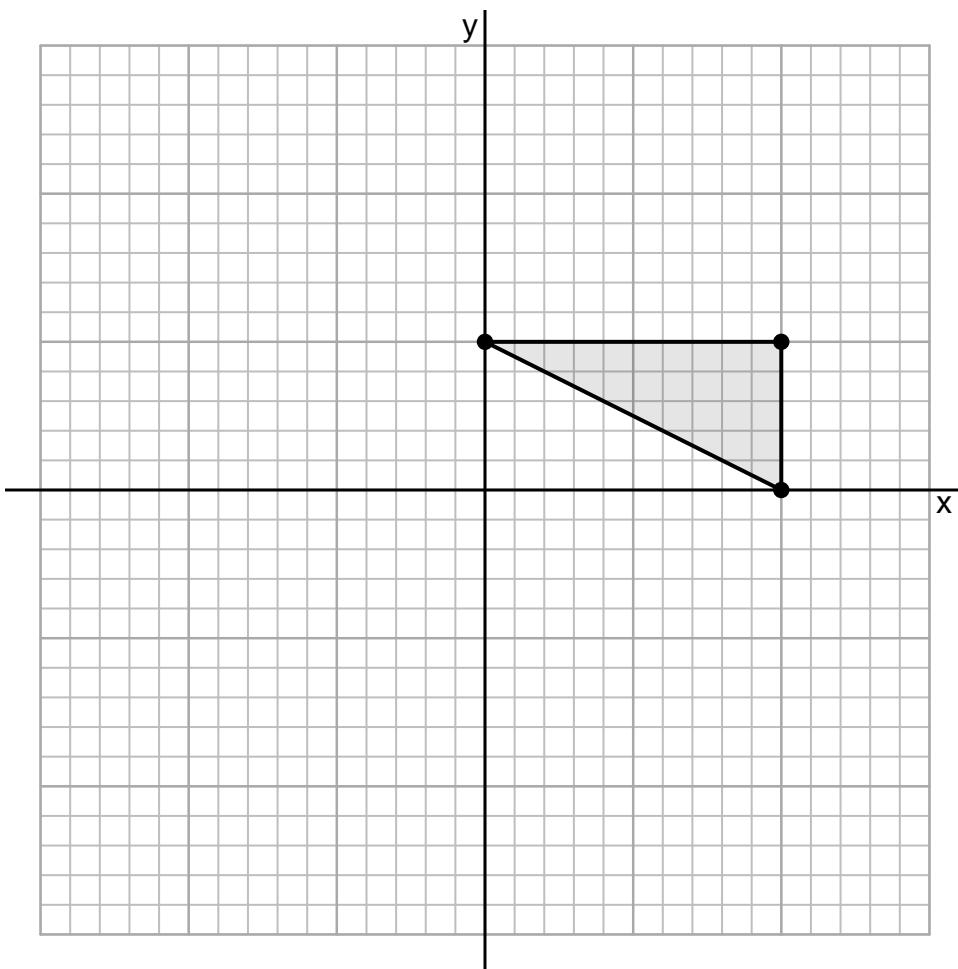


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 10 & 0 & 10 \\ 5 & 5 & 0 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 323.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} 0.8 & -0.6 \\ -0.6 & -0.8 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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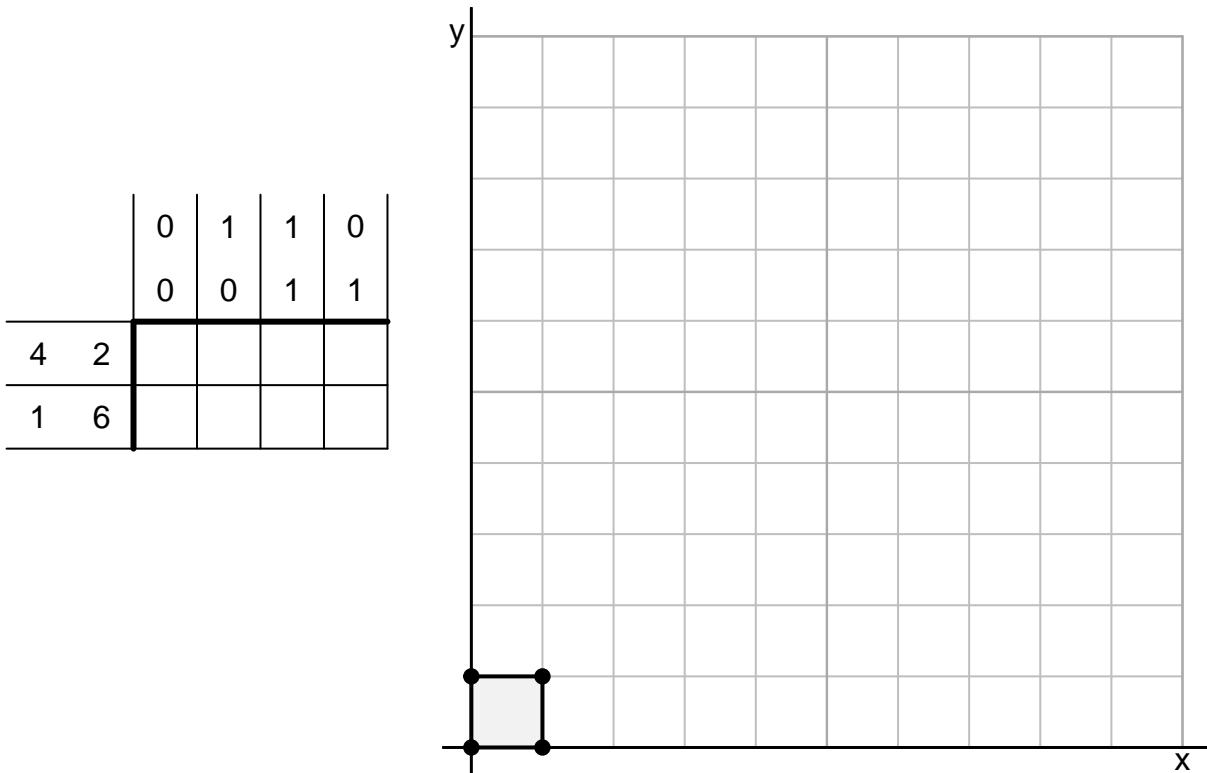
s19 Matrix Exam (practice v104)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 4 & 2 \\ 1 & 6 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

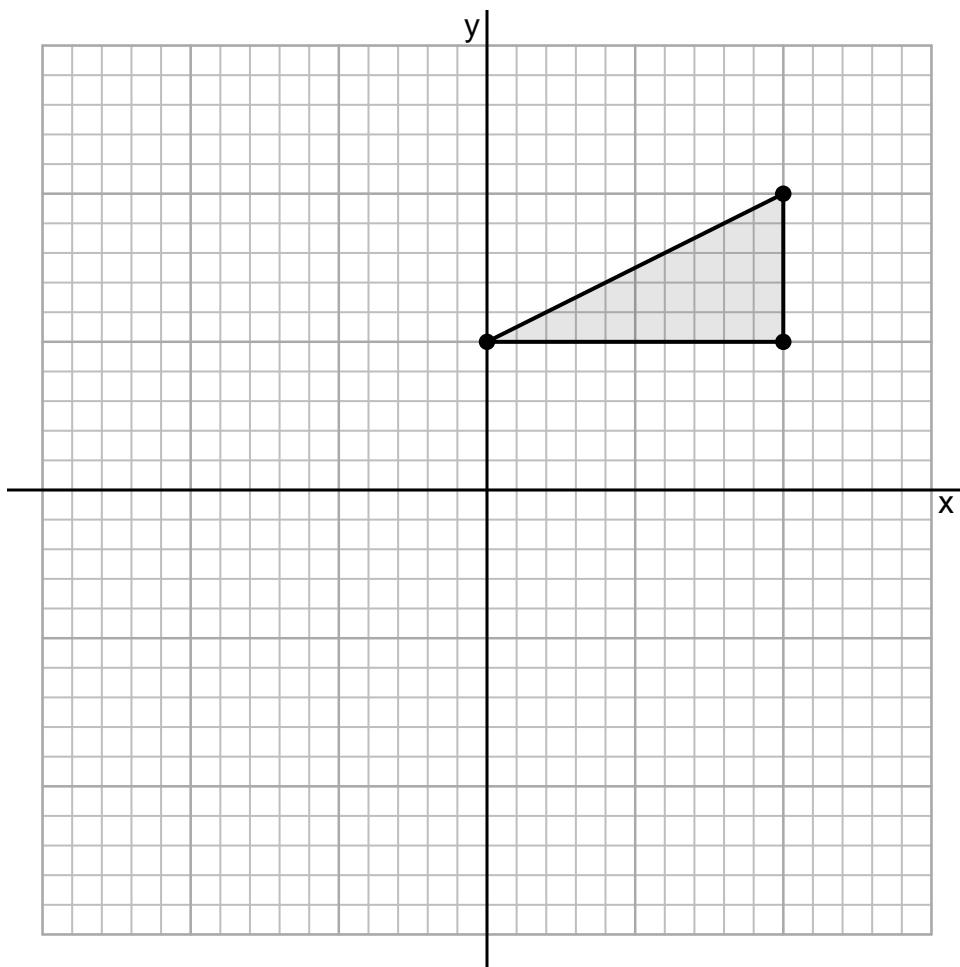


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 0 & 10 & 10 \\ 5 & 10 & 5 \end{bmatrix}$. In order to reflect over the y axis and then rotate by 36.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.8 & -0.6 \\ -0.6 & 0.8 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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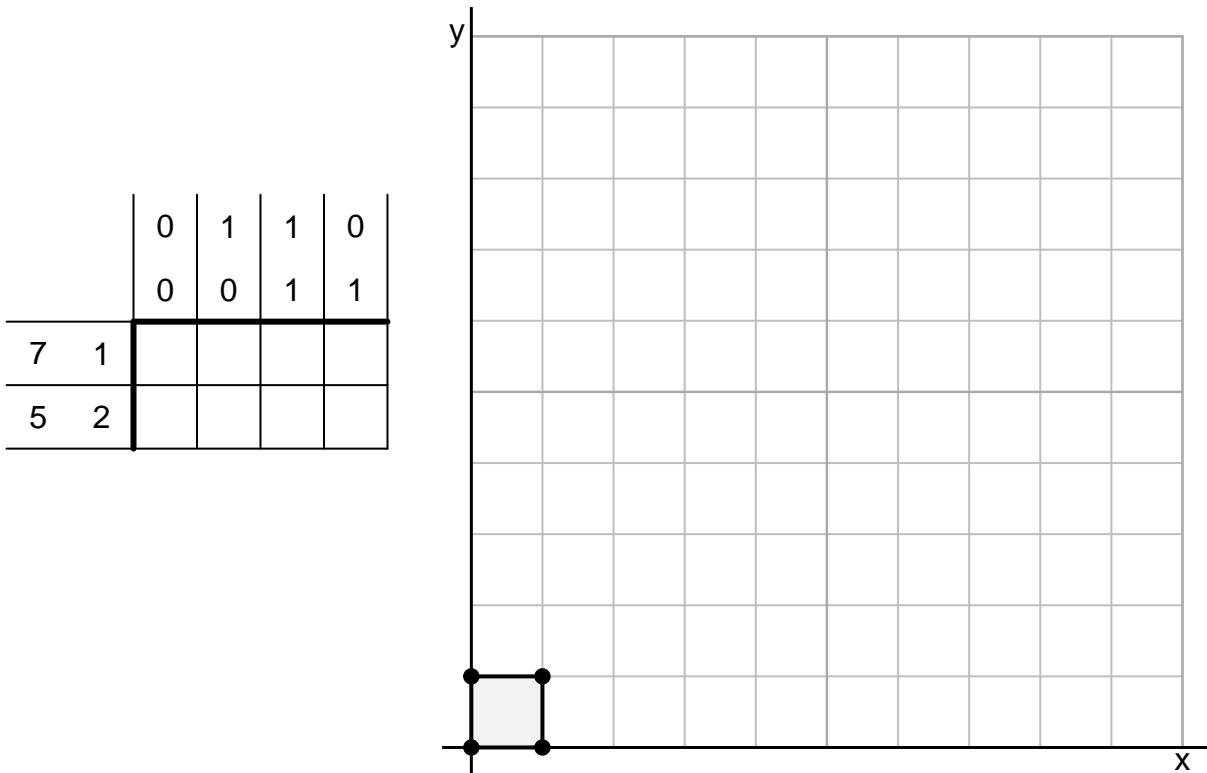
s19 Matrix Exam (practice v105)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 7 & 1 \\ 5 & 2 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

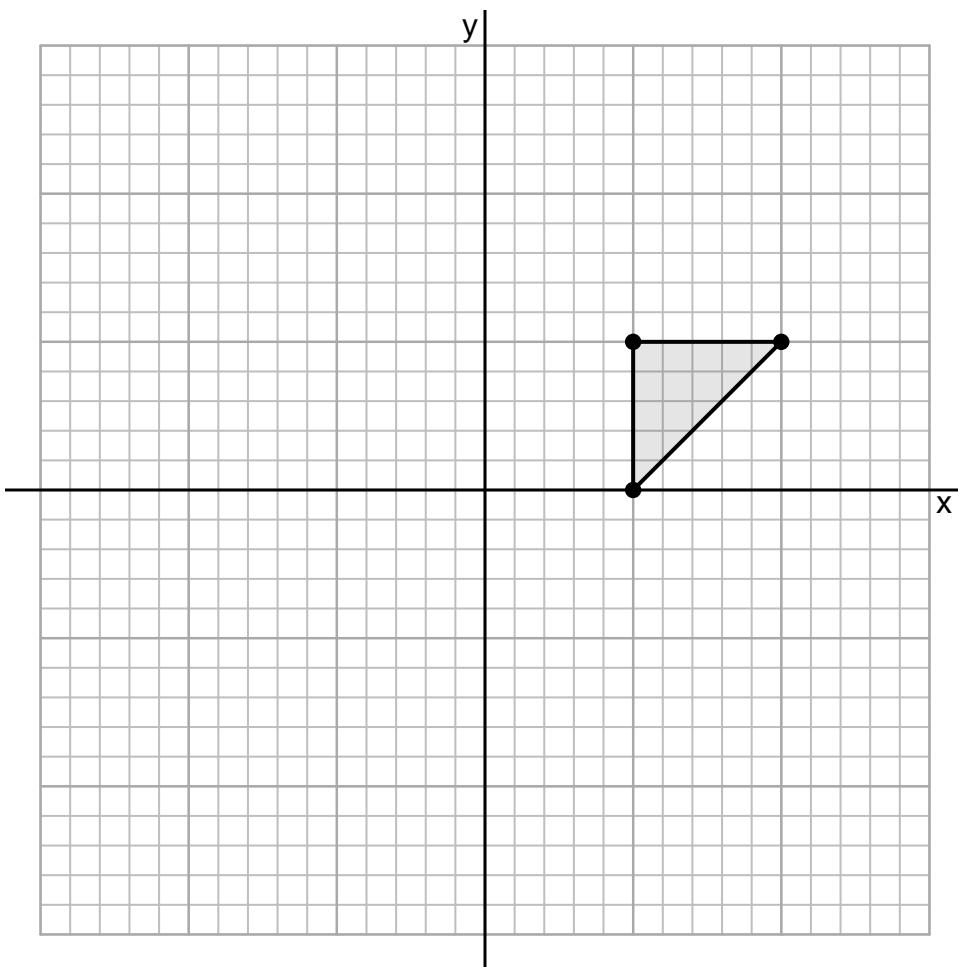


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 5 & 5 & 10 \\ 5 & 0 & 5 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 233.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.6 & -0.8 \\ -0.8 & 0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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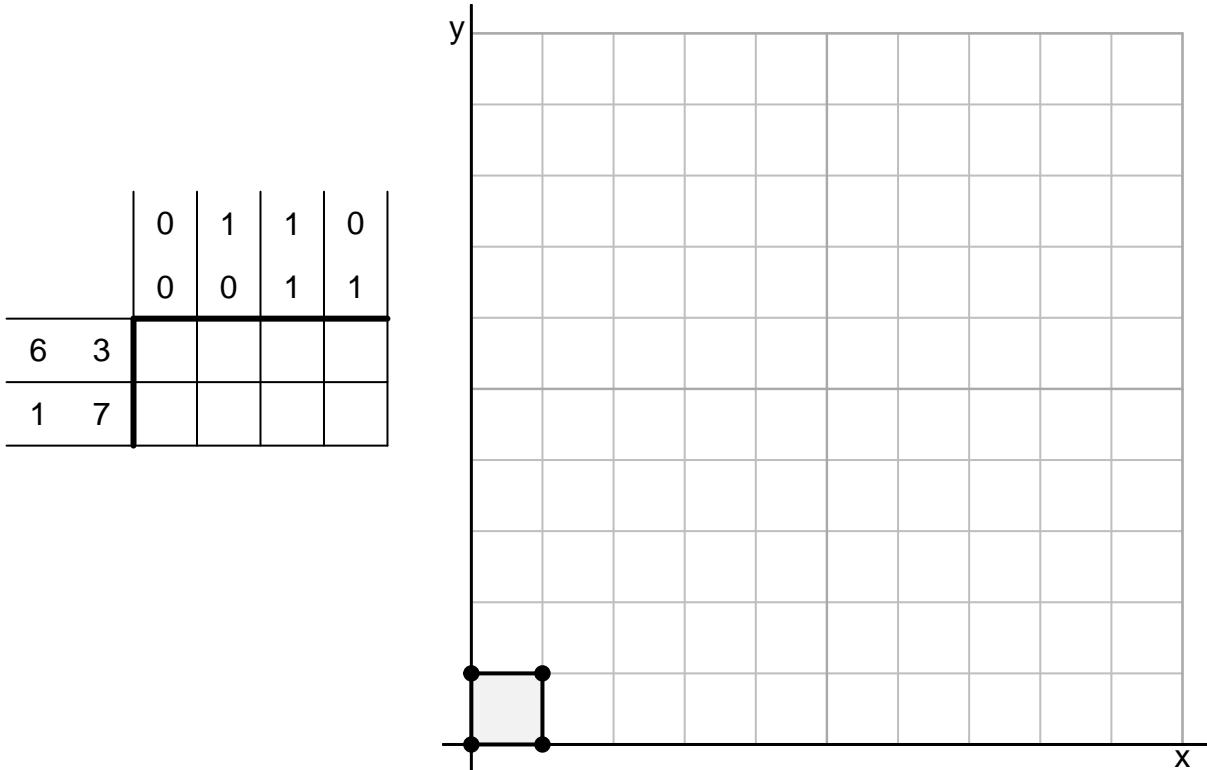
s19 Matrix Exam (practice v106)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 6 & 3 \\ 1 & 7 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

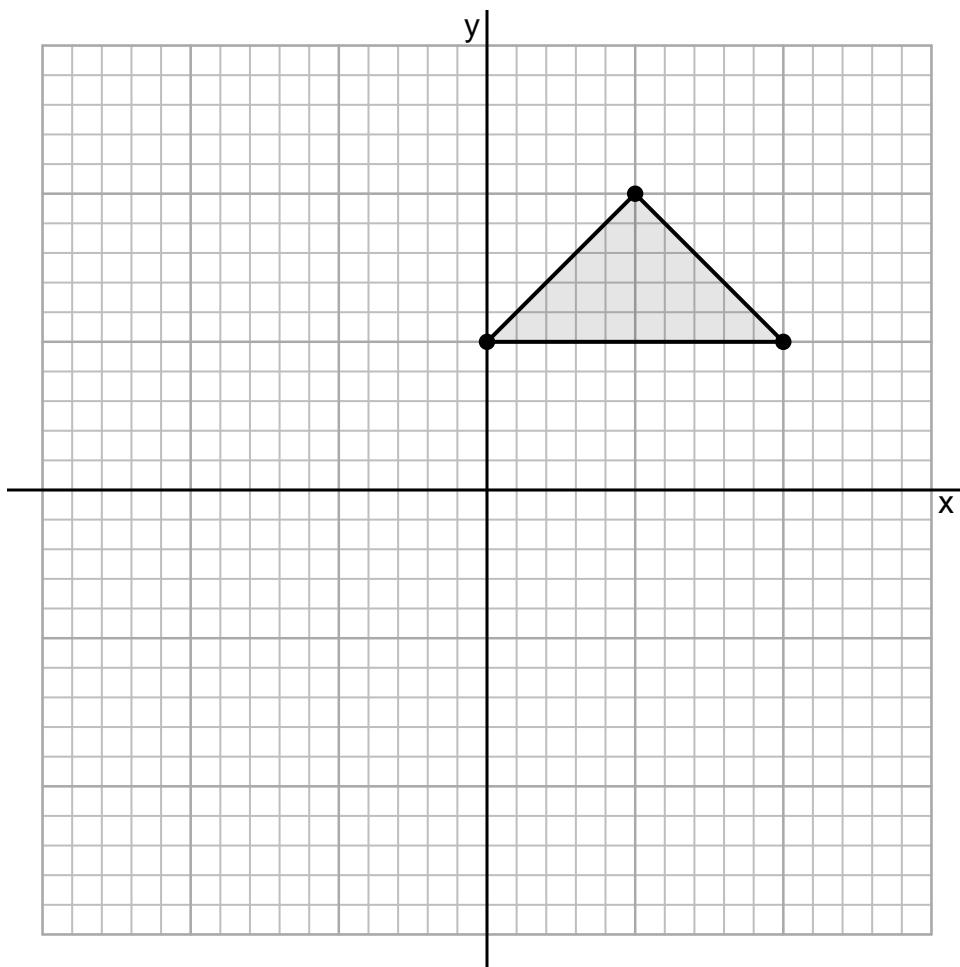


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 5 & 10 & 0 \\ 10 & 5 & 5 \end{bmatrix}$. In order to reflect over the x axis, reflect over the y axis, and then rotate by 323.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.8 & -0.6 \\ 0.6 & -0.8 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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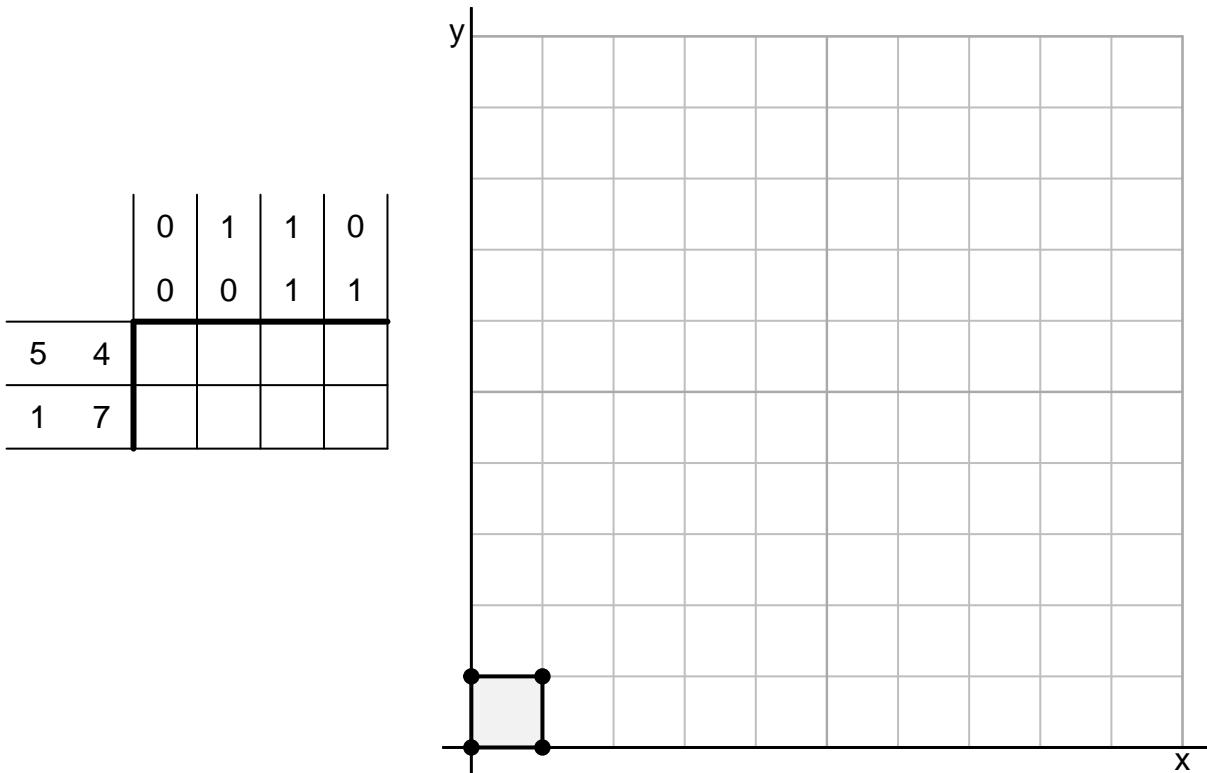
s19 Matrix Exam (practice v107)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 5 & 4 \\ 1 & 7 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

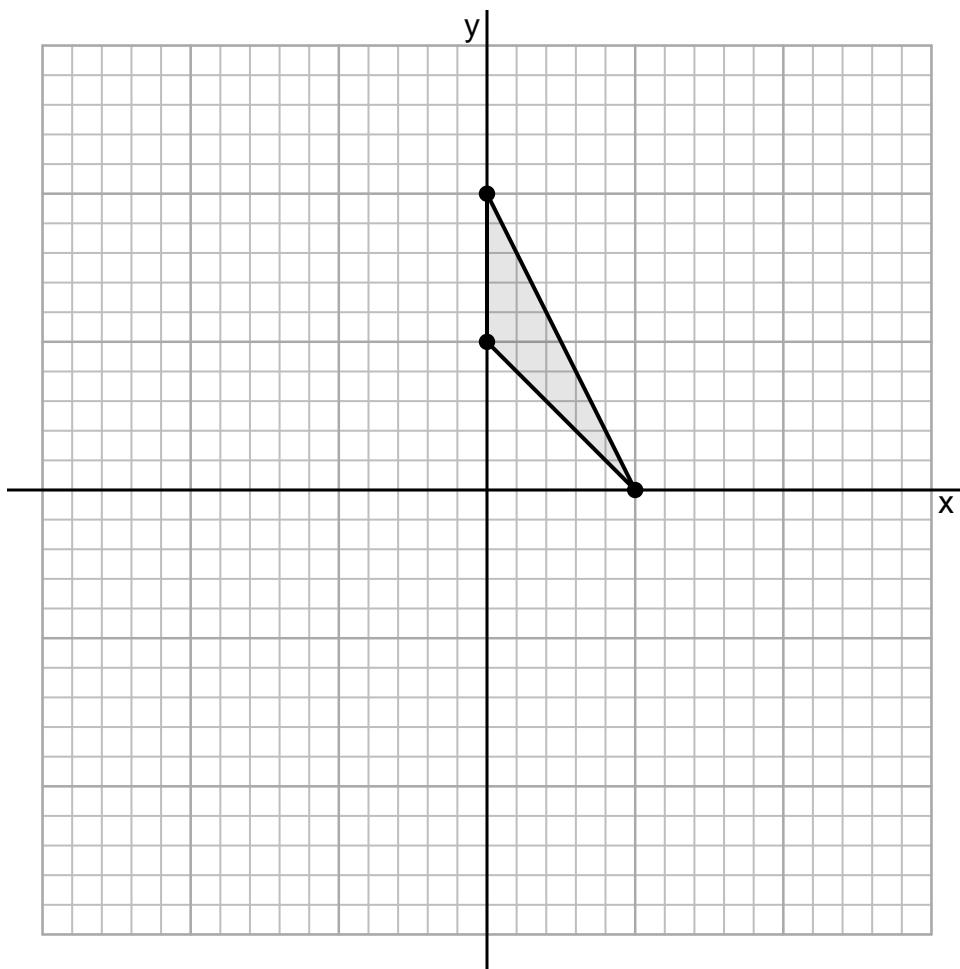


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 0 & 5 & 0 \\ 5 & 0 & 10 \end{bmatrix}$. In order to reflect over the y axis and then rotate by 53.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.6 & -0.8 \\ -0.8 & 0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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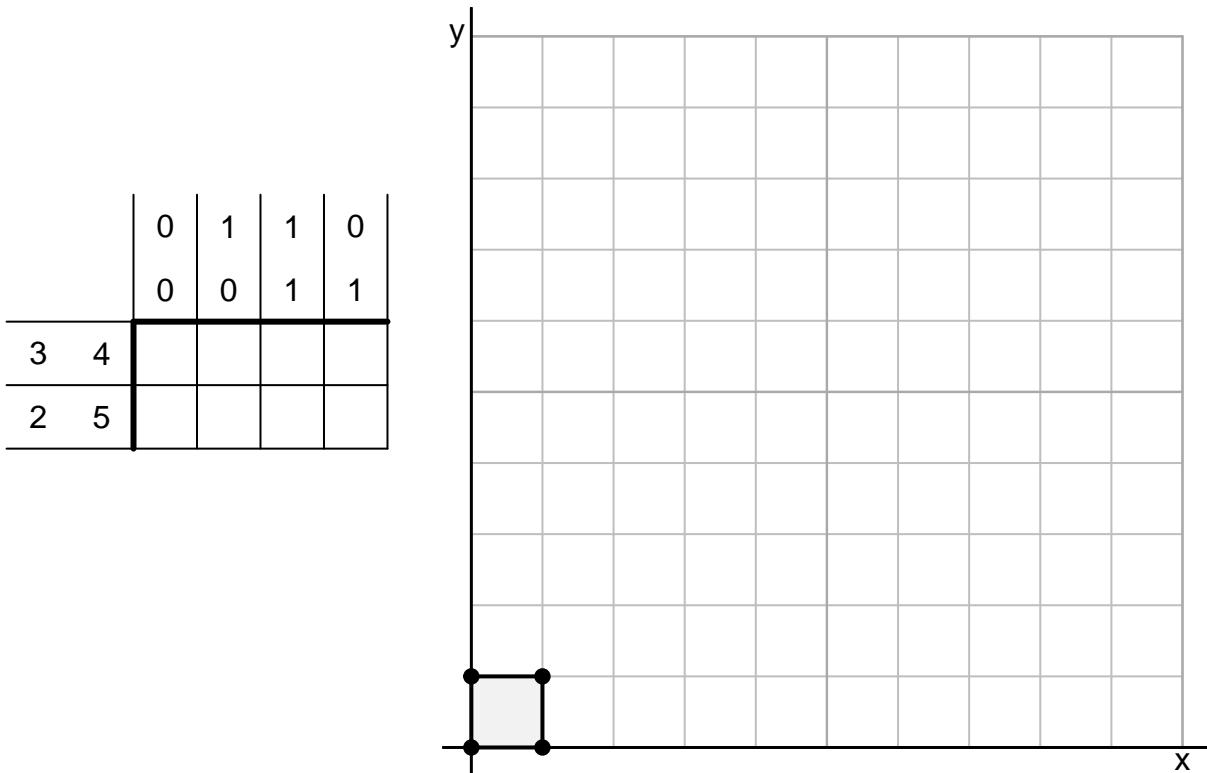
s19 Matrix Exam (practice v108)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 3 & 4 \\ 2 & 5 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

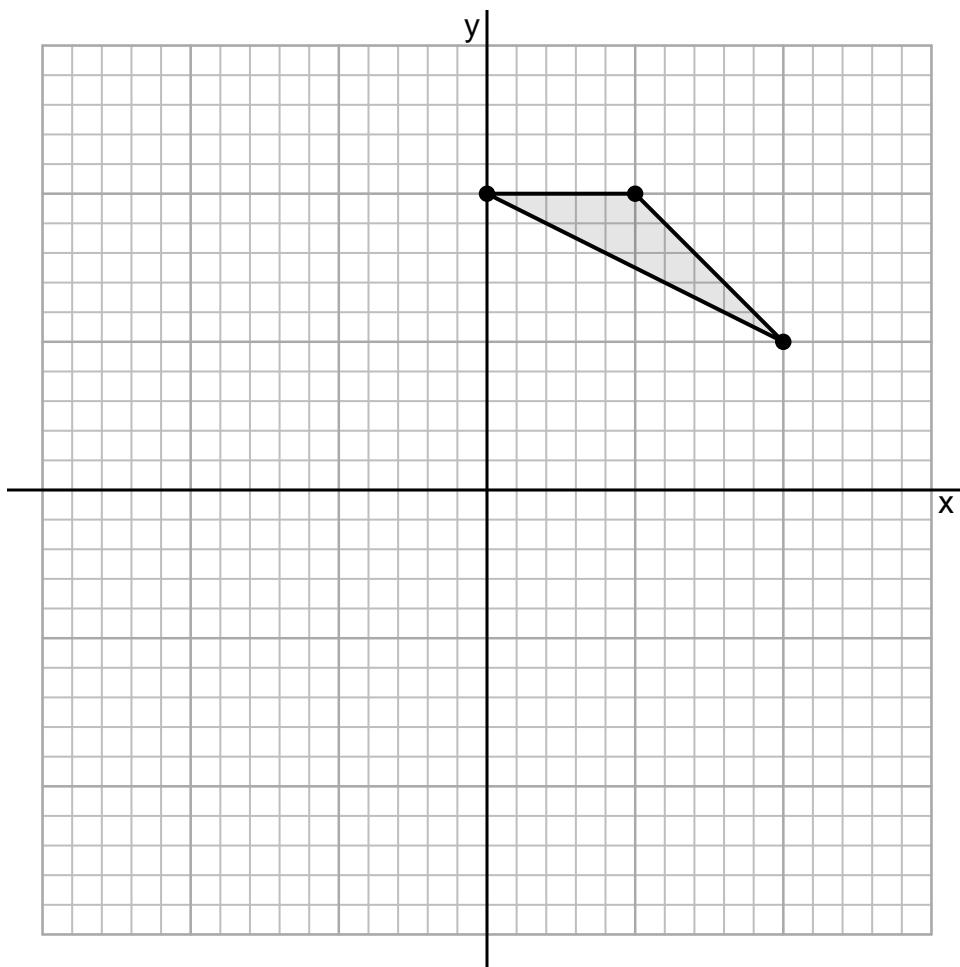


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 5 & 10 & 0 \\ 10 & 5 & 10 \end{bmatrix}$. In order to reflect over the x axis, reflect over the y axis, and then rotate by 323.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.8 & -0.6 \\ 0.6 & -0.8 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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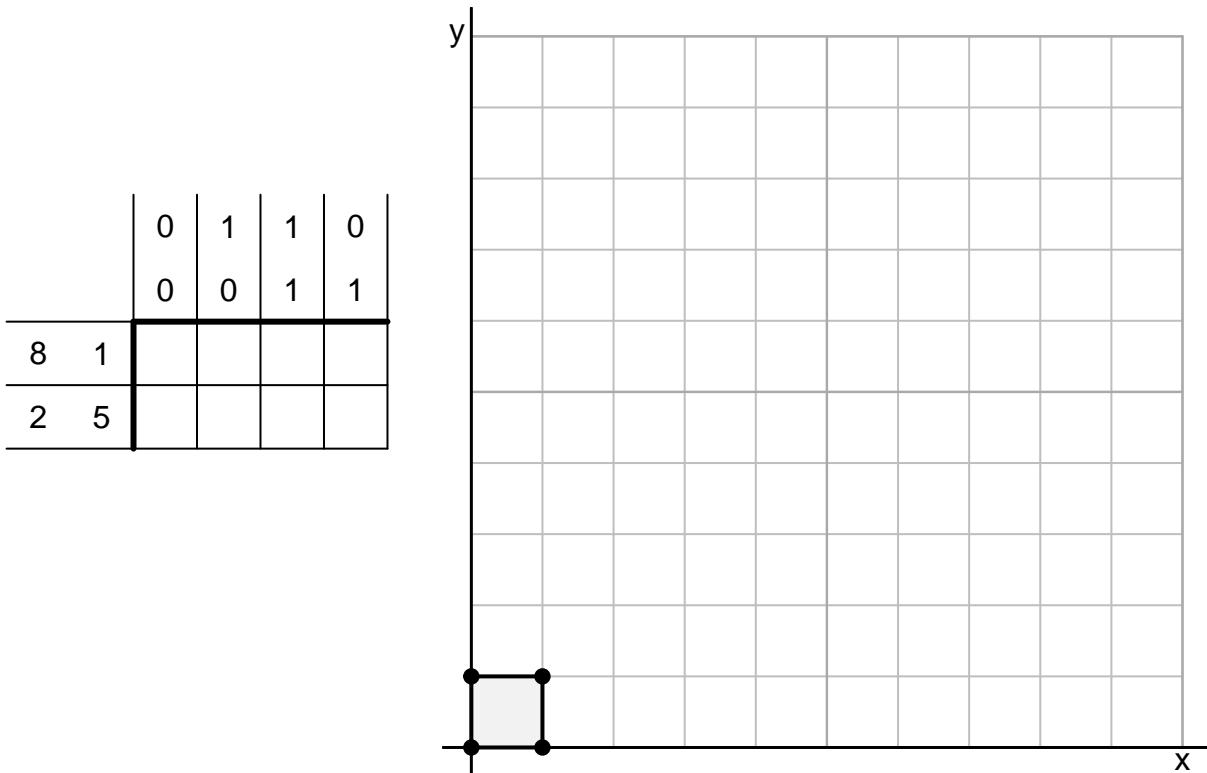
s19 Matrix Exam (practice v109)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 8 & 1 \\ 2 & 5 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

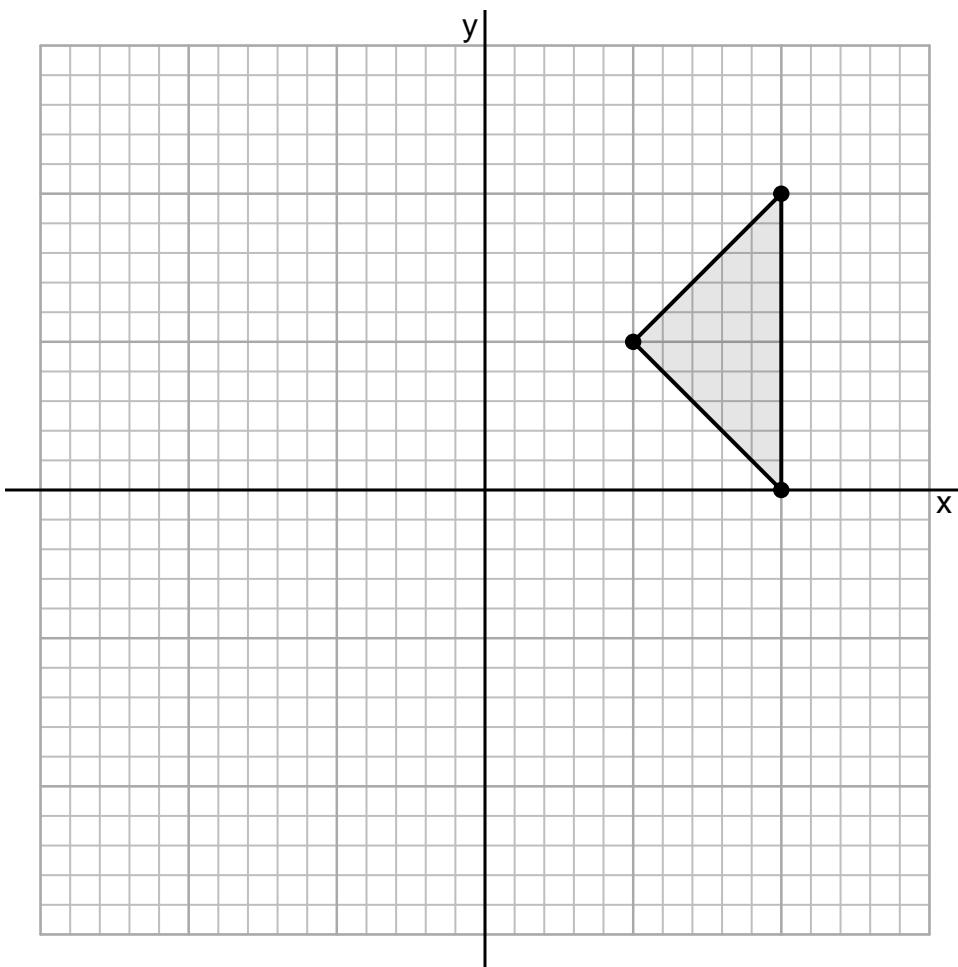


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 10 & 10 & 5 \\ 10 & 0 & 5 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 233.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.6 & -0.8 \\ -0.8 & 0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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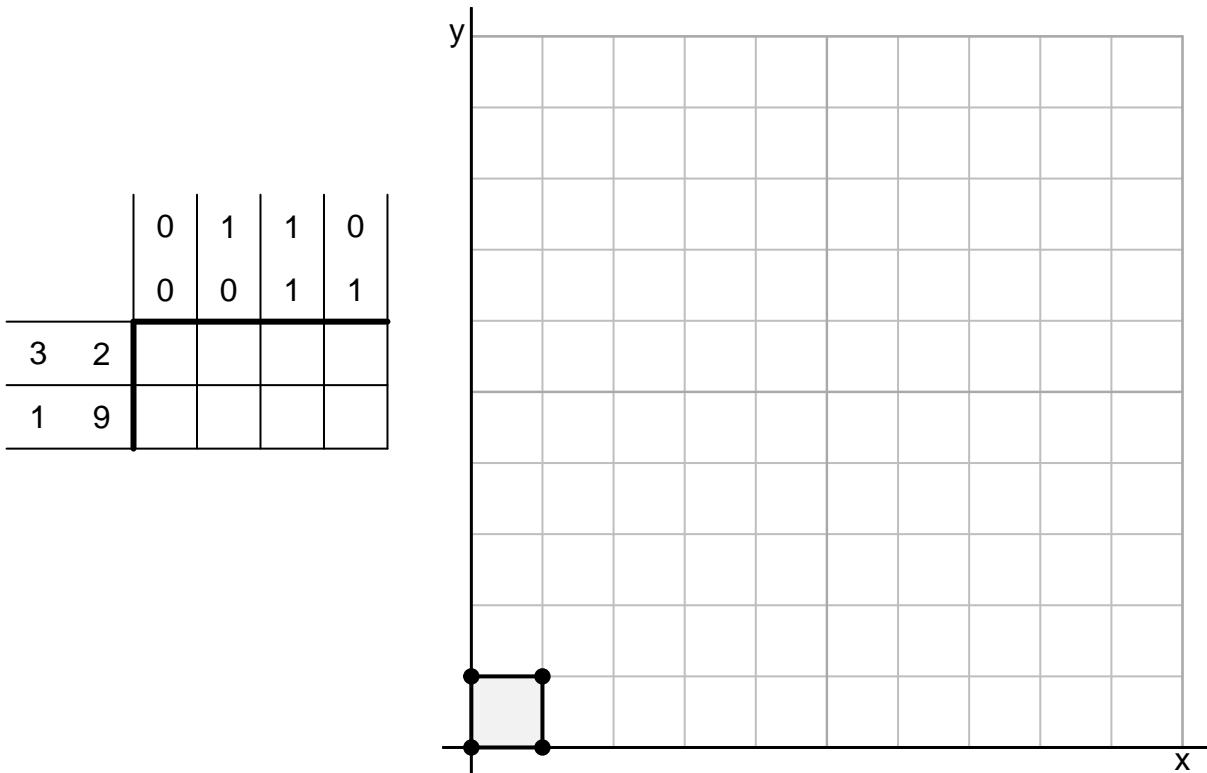
s19 Matrix Exam (practice v110)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 3 & 2 \\ 1 & 9 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

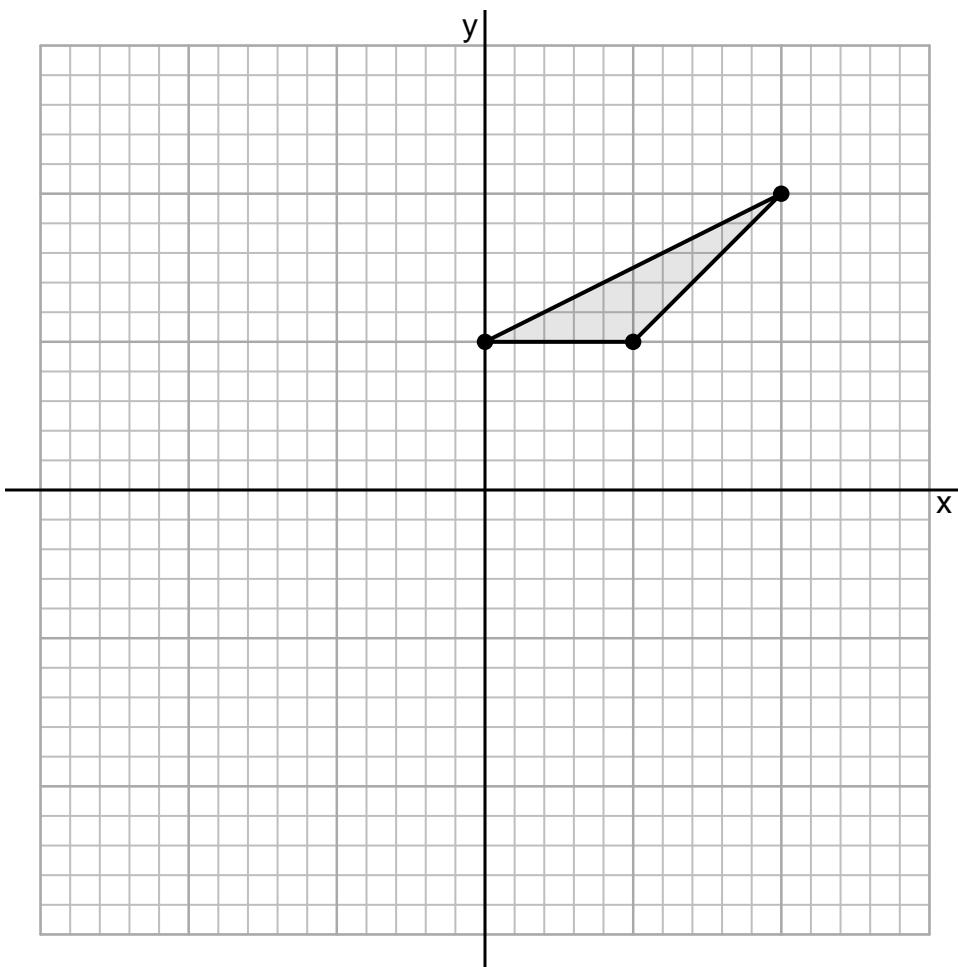


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 0 & 5 & 10 \\ 5 & 5 & 10 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 36.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} 0.8 & 0.6 \\ 0.6 & -0.8 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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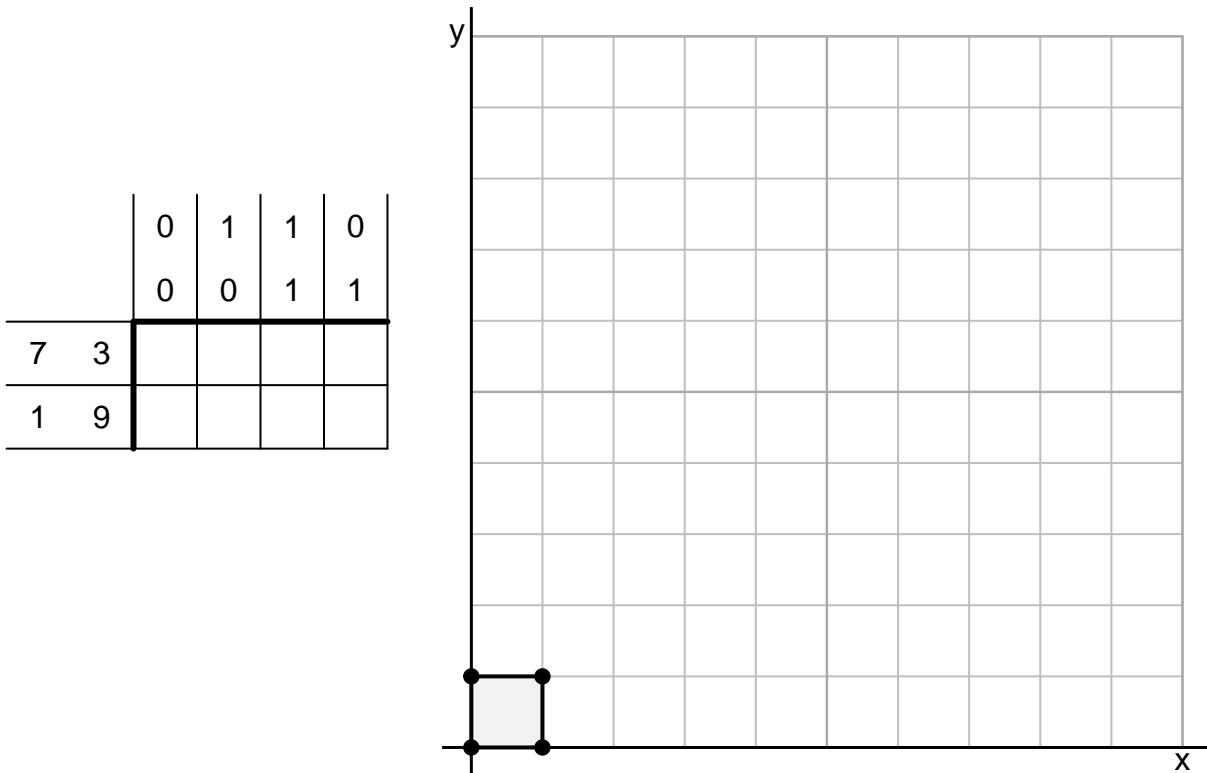
s19 Matrix Exam (practice v111)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 7 & 3 \\ 1 & 9 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

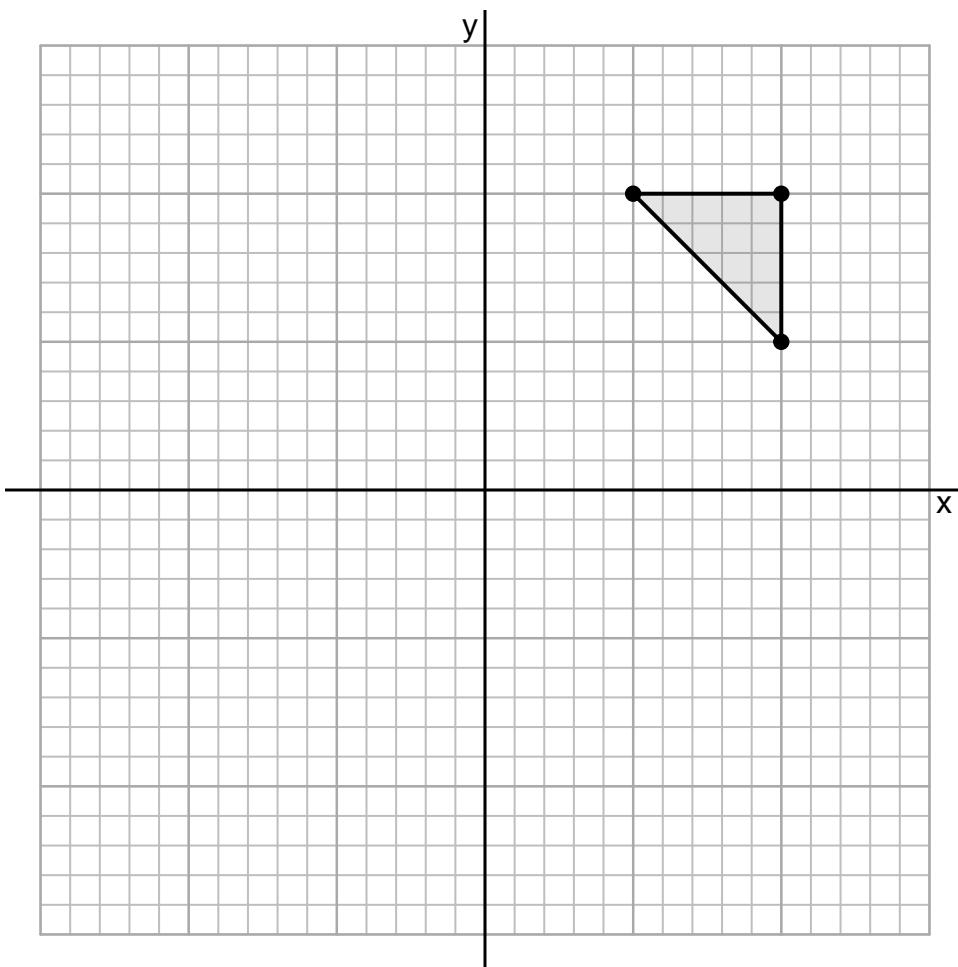


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 10 & 10 & 5 \\ 10 & 5 & 10 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 306.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} 0.6 & -0.8 \\ -0.8 & -0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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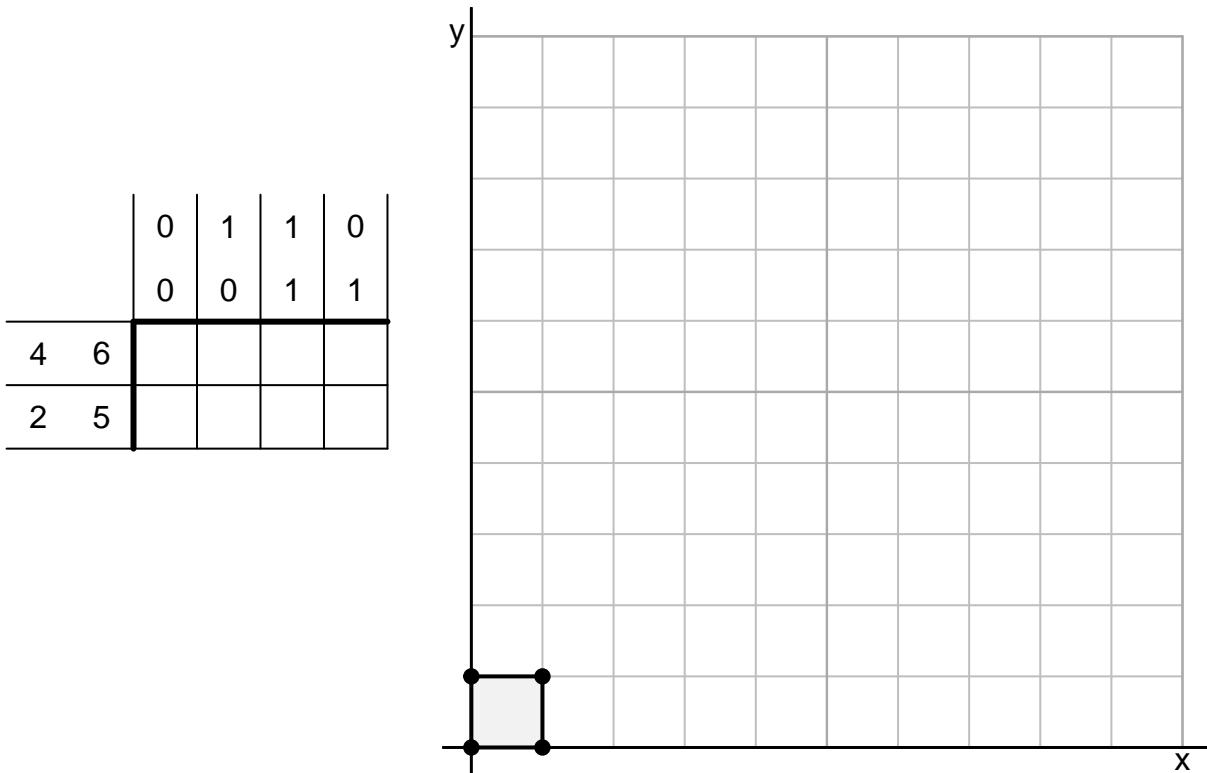
s19 Matrix Exam (practice v112)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 4 & 6 \\ 2 & 5 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

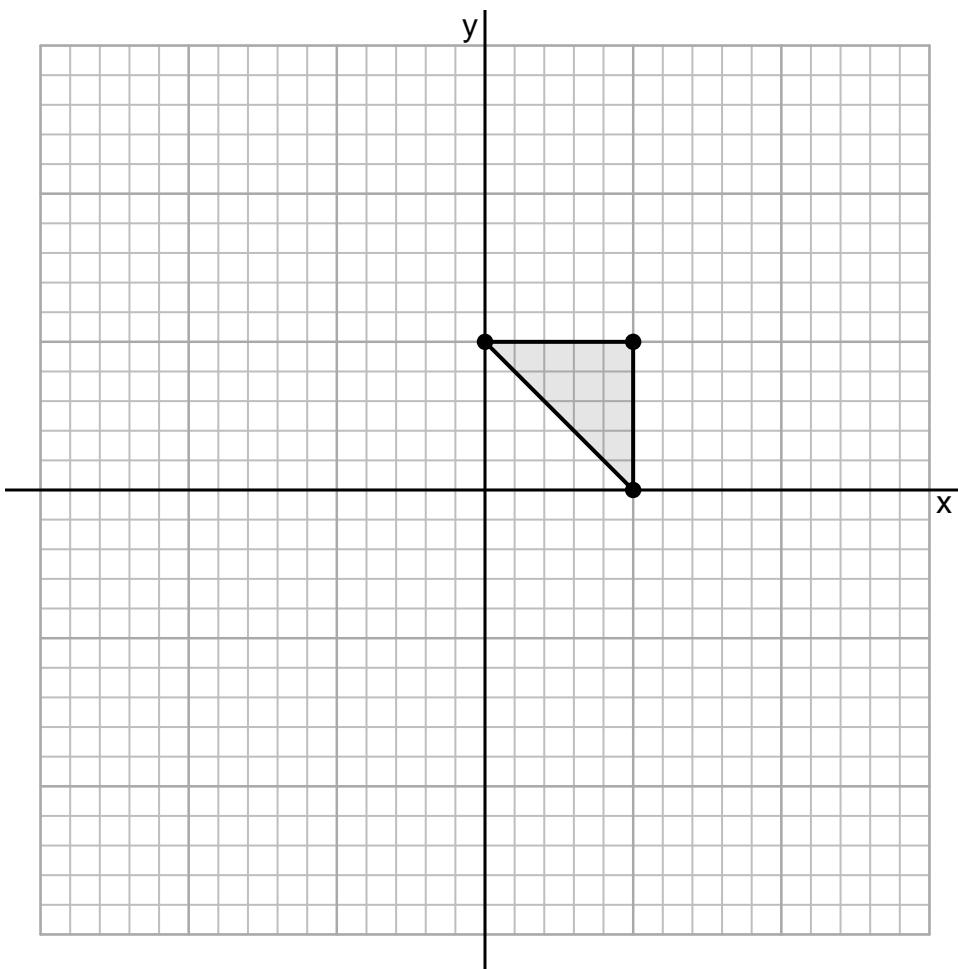


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 5 & 0 & 5 \\ 0 & 5 & 5 \end{bmatrix}$. In order to reflect over the x axis, reflect over the y axis, and then rotate by 323.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.8 & -0.6 \\ 0.6 & -0.8 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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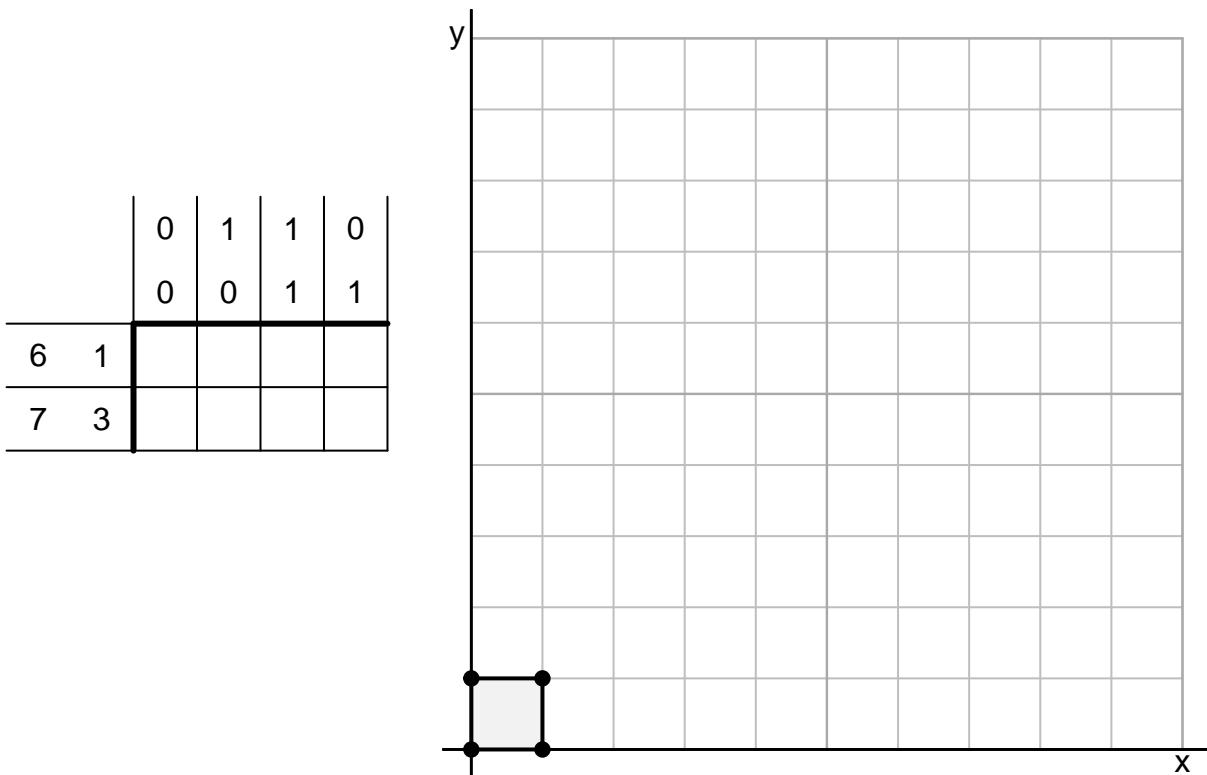
s19 Matrix Exam (practice v113)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 6 & 1 \\ 7 & 3 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

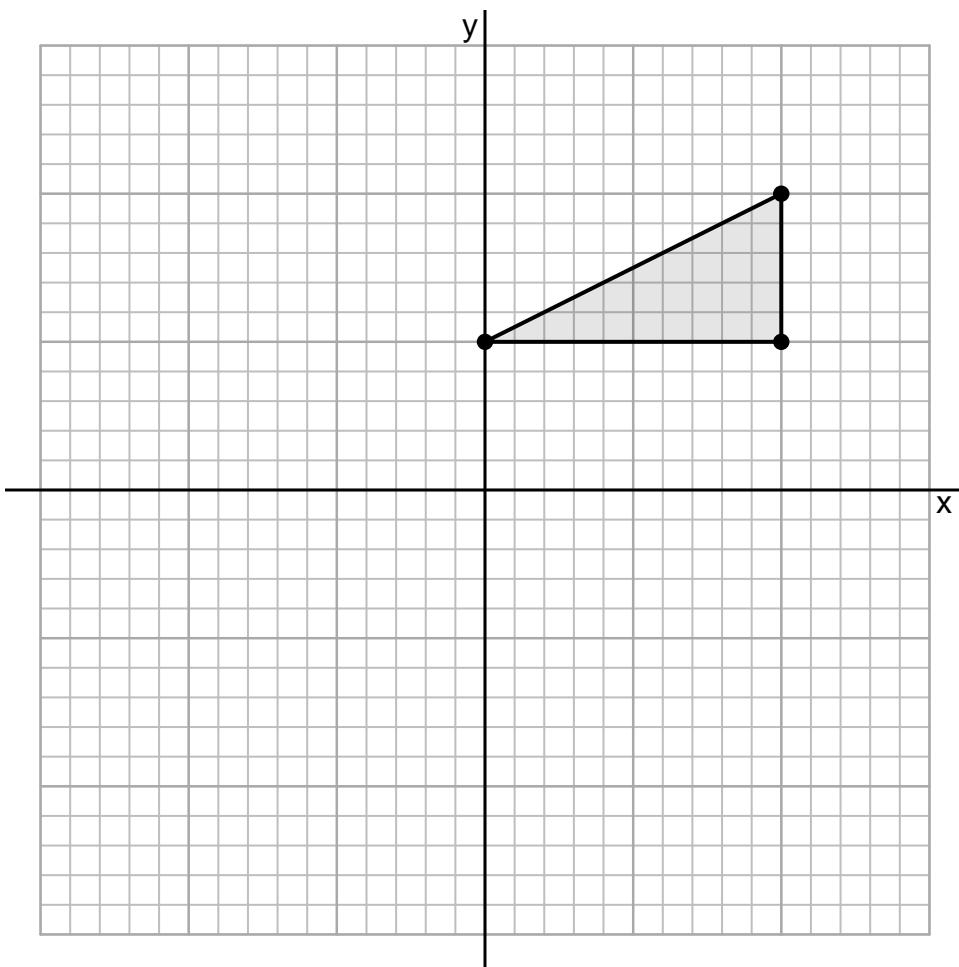


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 0 & 10 & 10 \\ 5 & 10 & 5 \end{bmatrix}$. In order to reflect over the y axis and then rotate by 53.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.6 & -0.8 \\ -0.8 & 0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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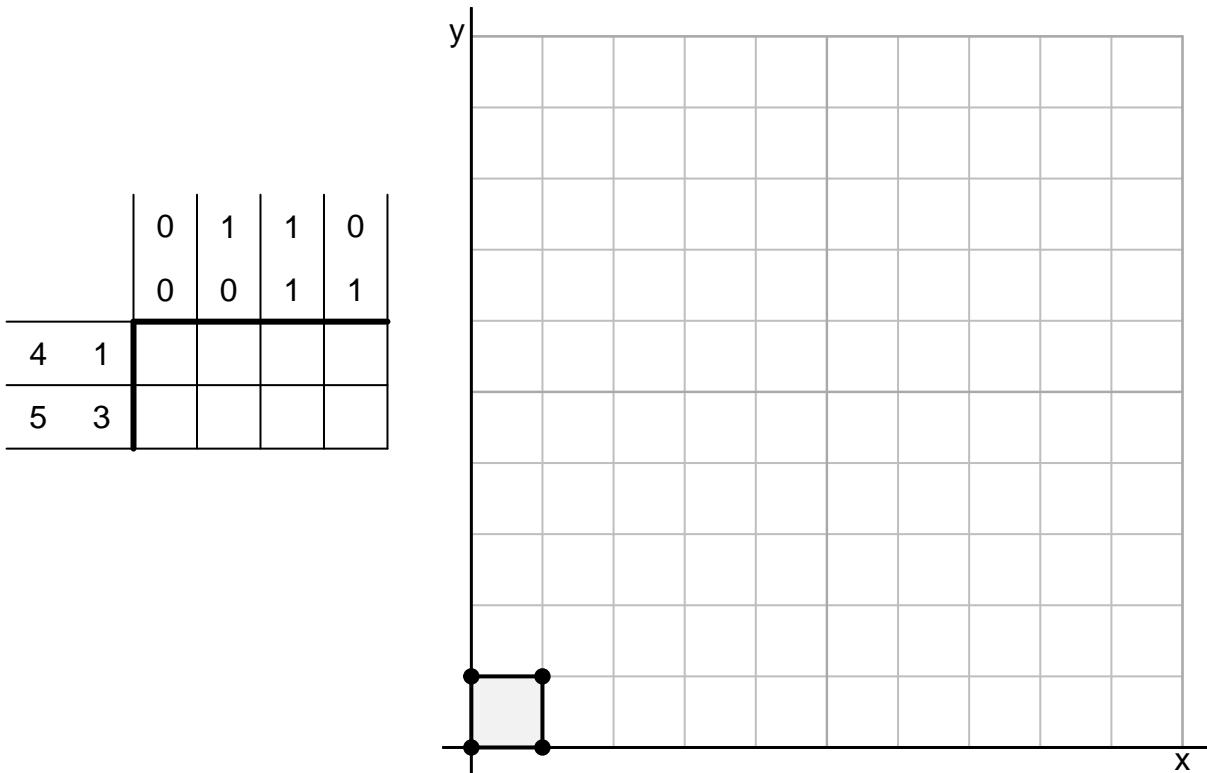
s19 Matrix Exam (practice v114)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 4 & 1 \\ 5 & 3 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

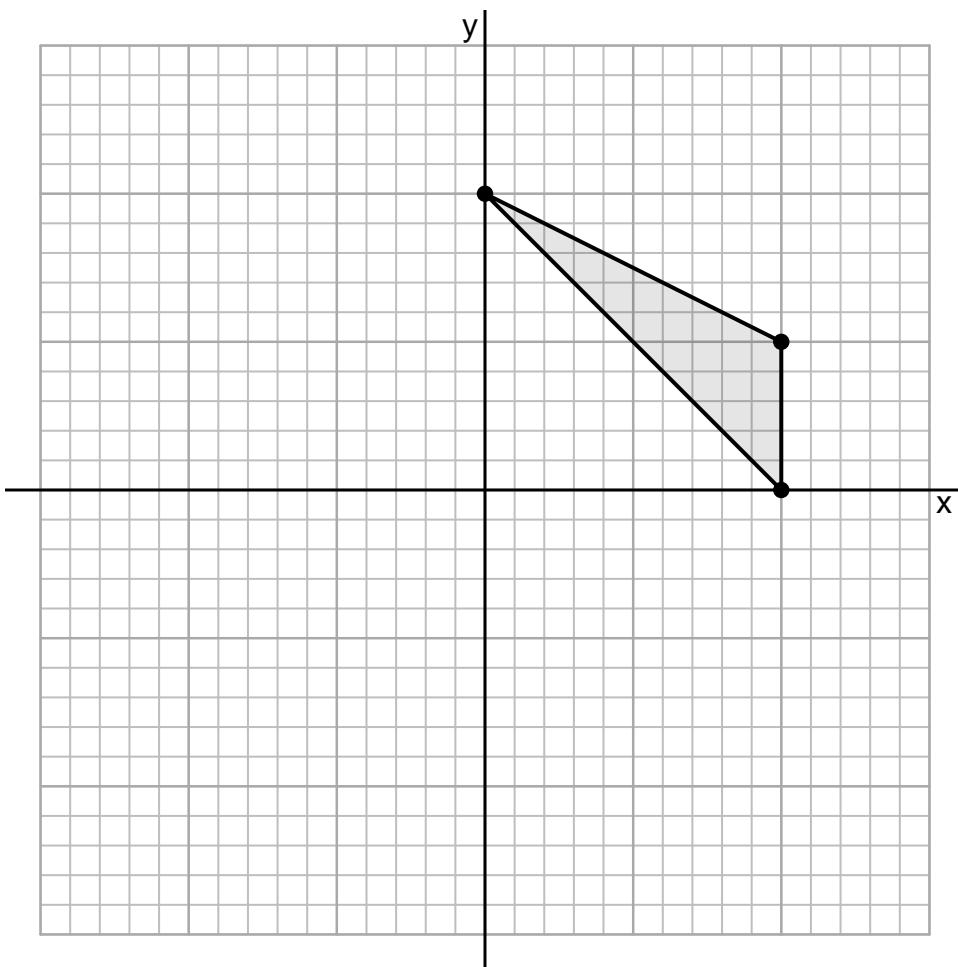


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 0 & 10 & 10 \\ 10 & 0 & 5 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 216.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.8 & -0.6 \\ -0.6 & 0.8 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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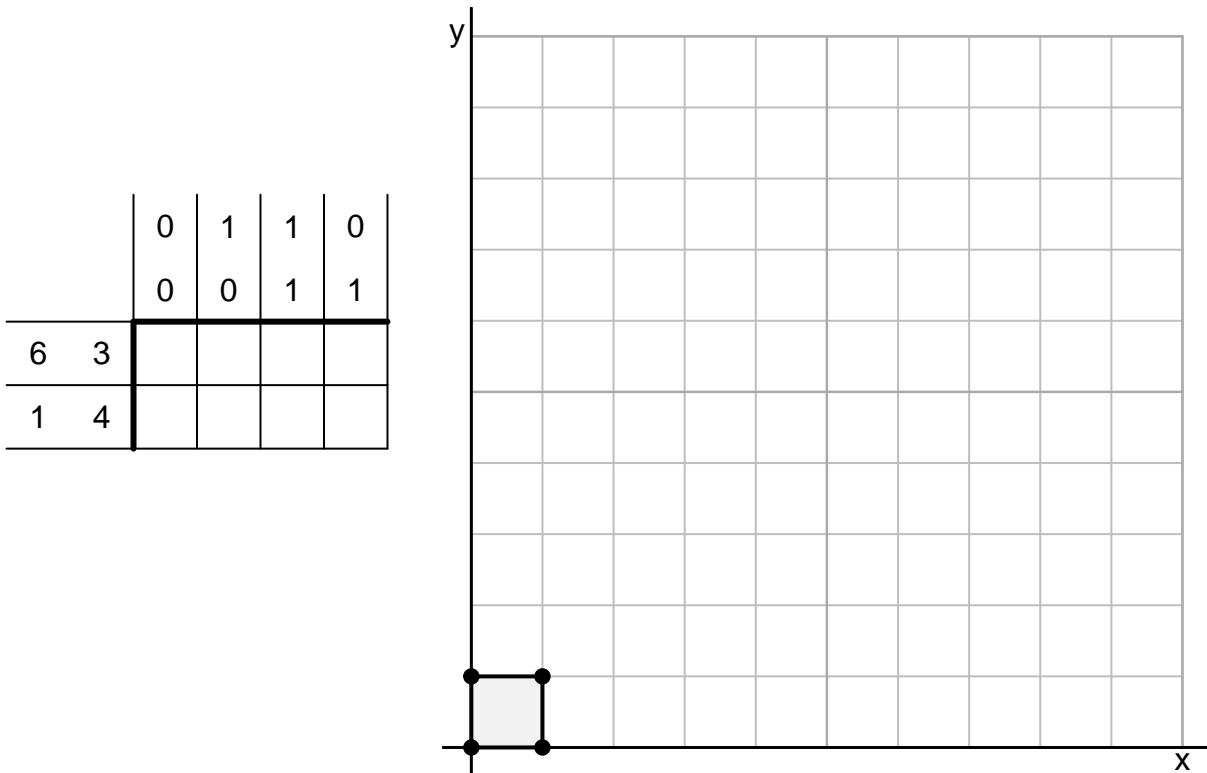
s19 Matrix Exam (practice v115)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 6 & 3 \\ 1 & 4 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

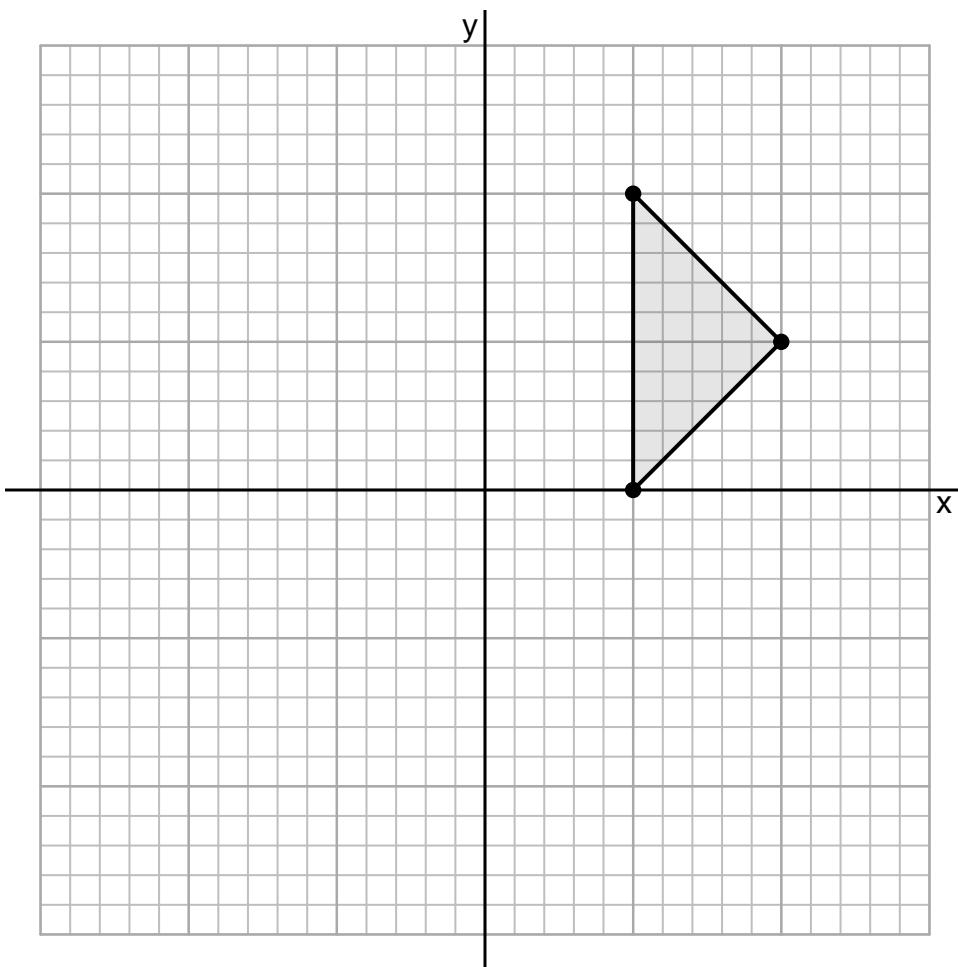


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 5 & 5 & 10 \\ 0 & 10 & 5 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 233.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.6 & -0.8 \\ -0.8 & 0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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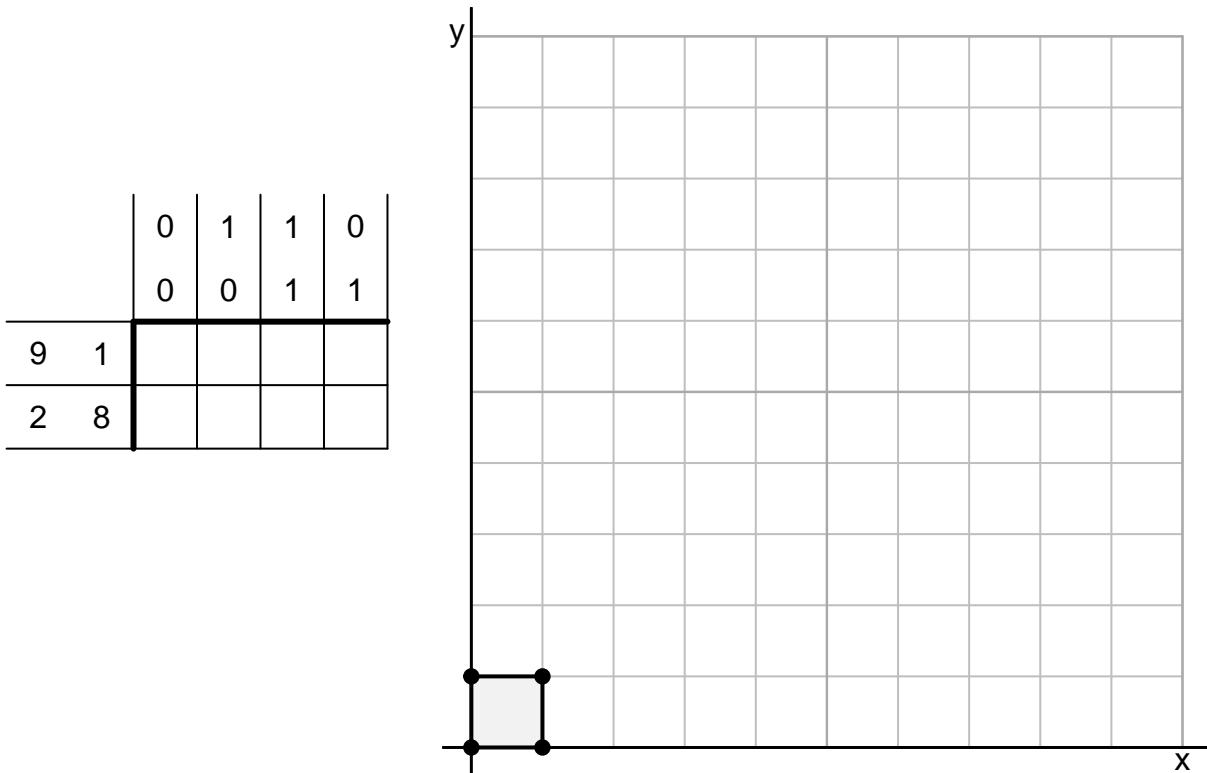
s19 Matrix Exam (practice v116)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 9 & 1 \\ 2 & 8 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

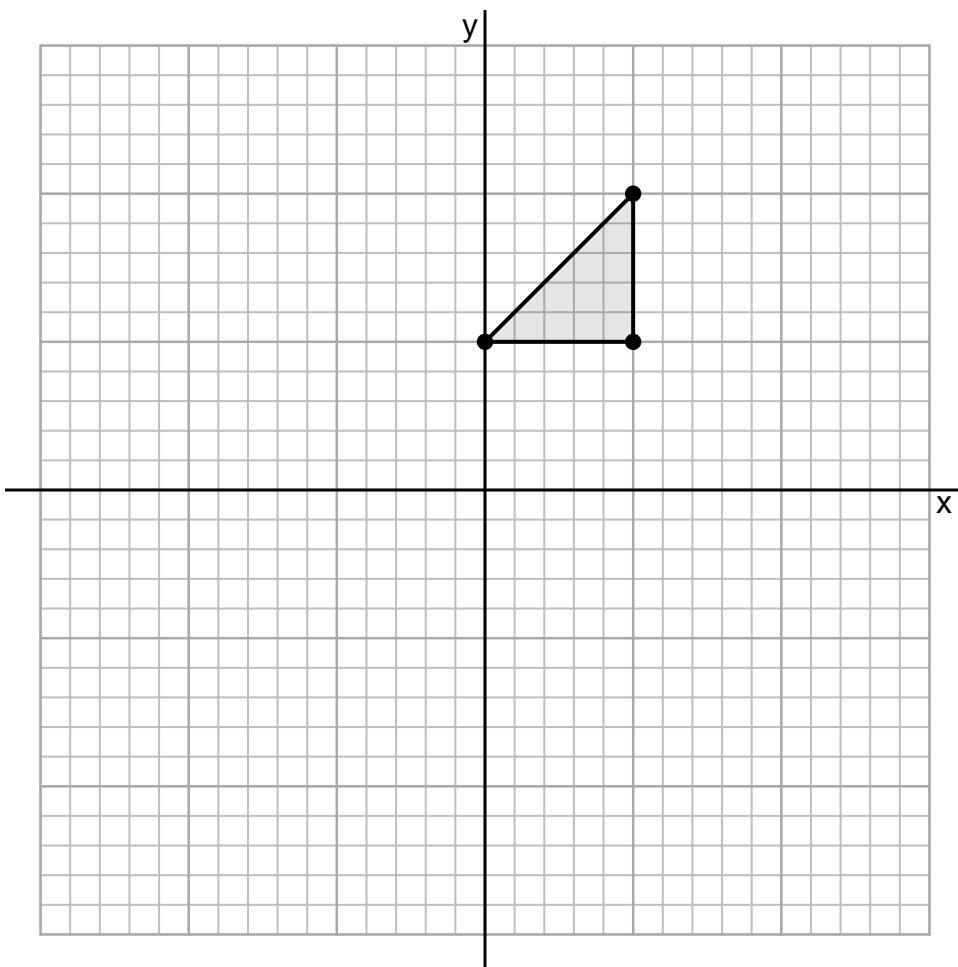


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 5 & 0 & 5 \\ 5 & 5 & 10 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 233.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.6 & -0.8 \\ -0.8 & 0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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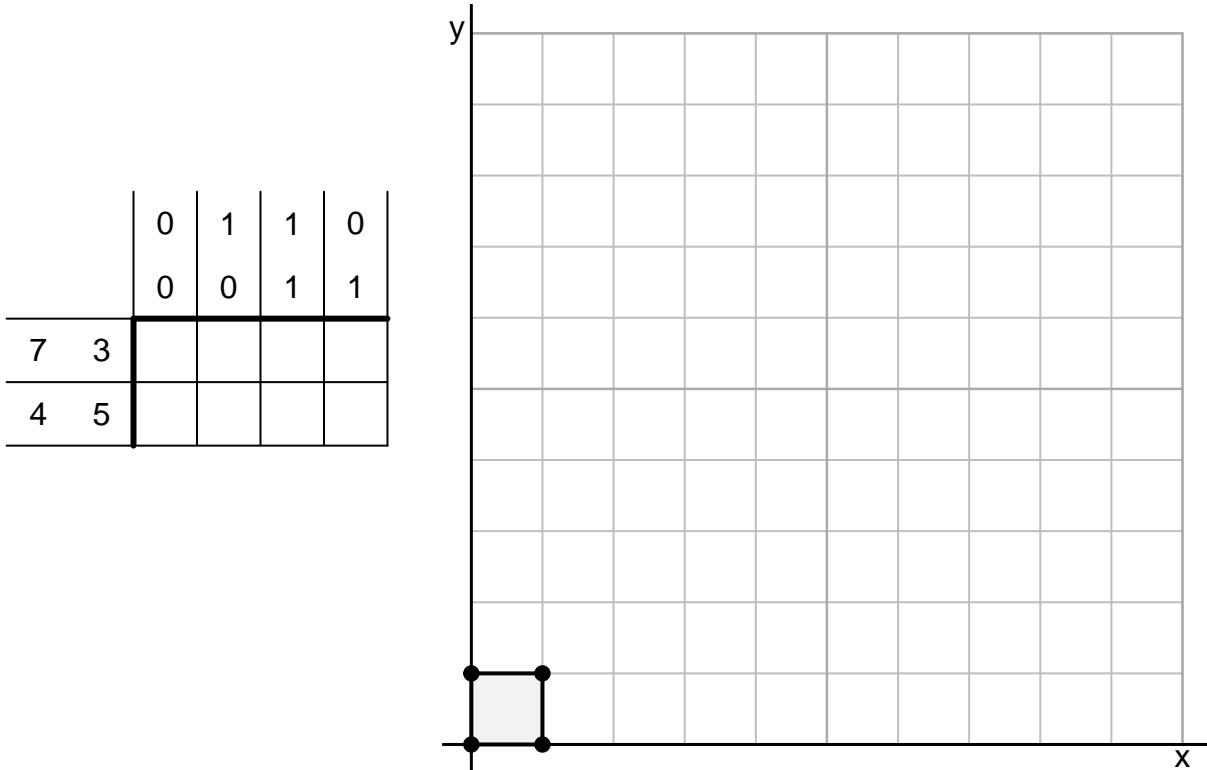
s19 Matrix Exam (practice v117)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 7 & 3 \\ 4 & 5 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

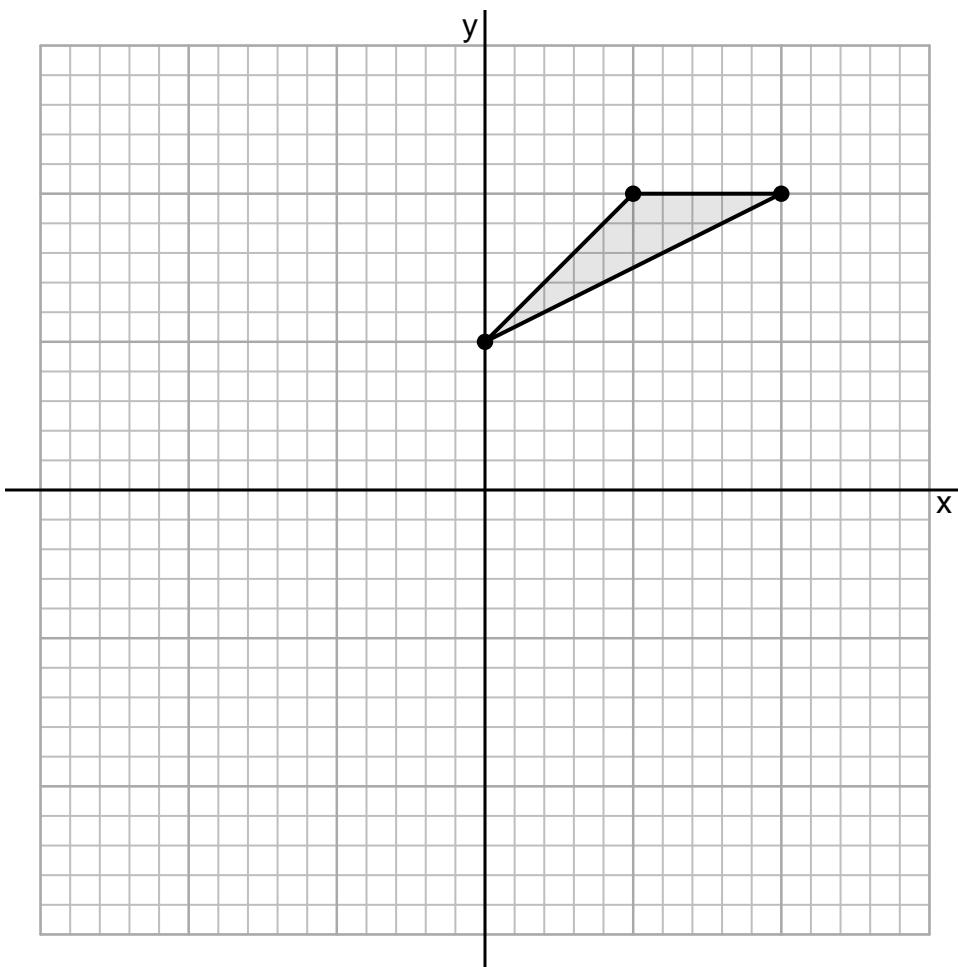


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 5 & 10 & 0 \\ 10 & 10 & 5 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 233.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.6 & -0.8 \\ -0.8 & 0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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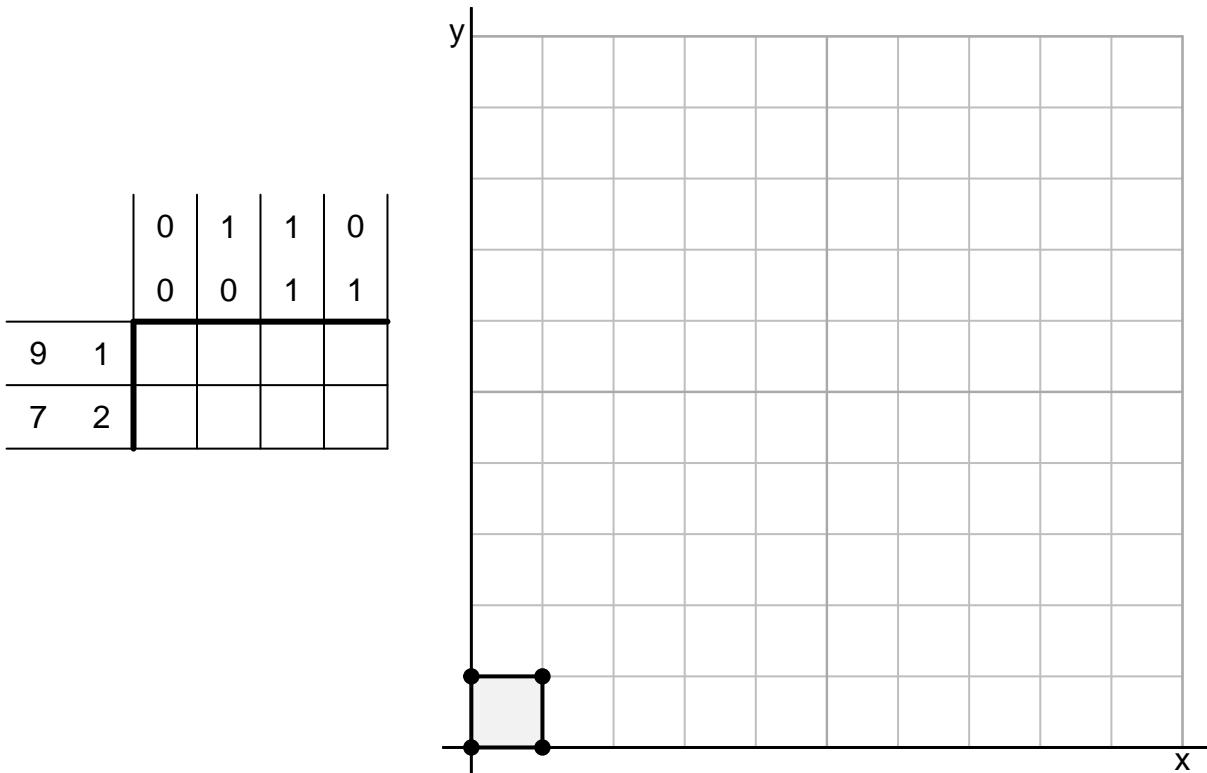
s19 Matrix Exam (practice v118)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 9 & 1 \\ 7 & 2 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

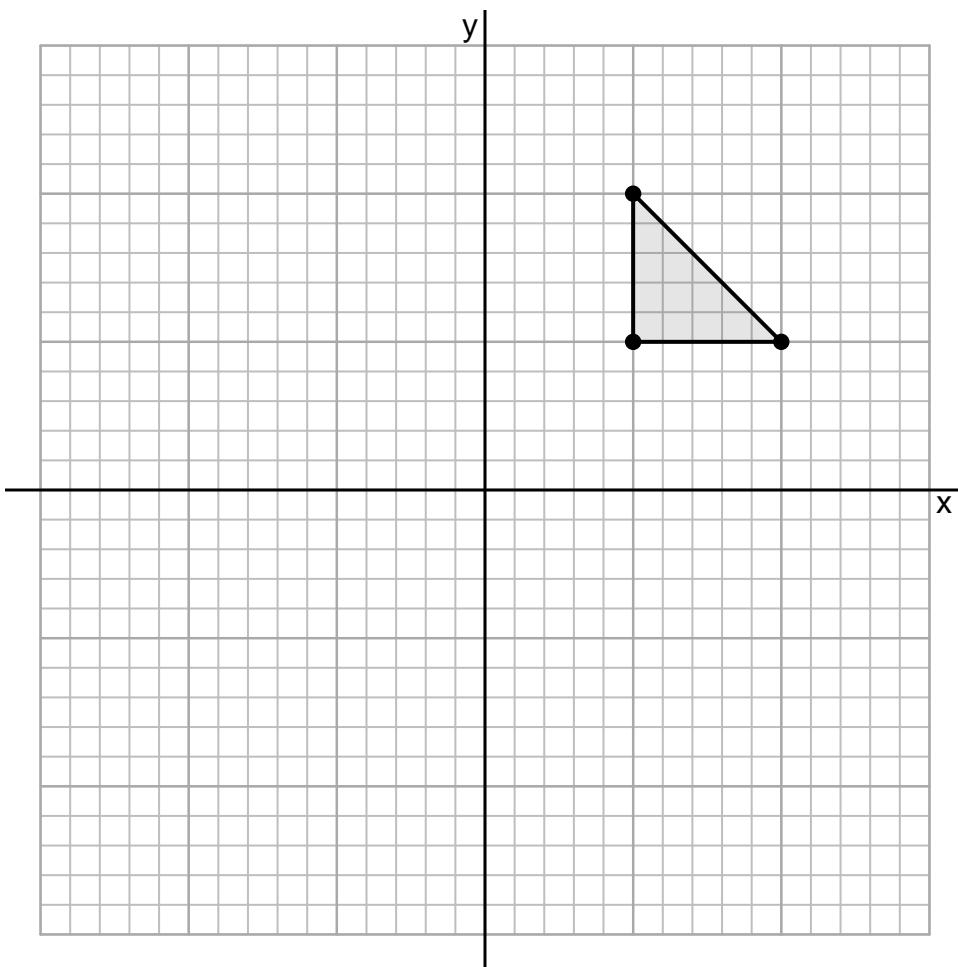


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 10 & 5 & 5 \\ 5 & 5 & 10 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 306.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} 0.6 & -0.8 \\ -0.8 & -0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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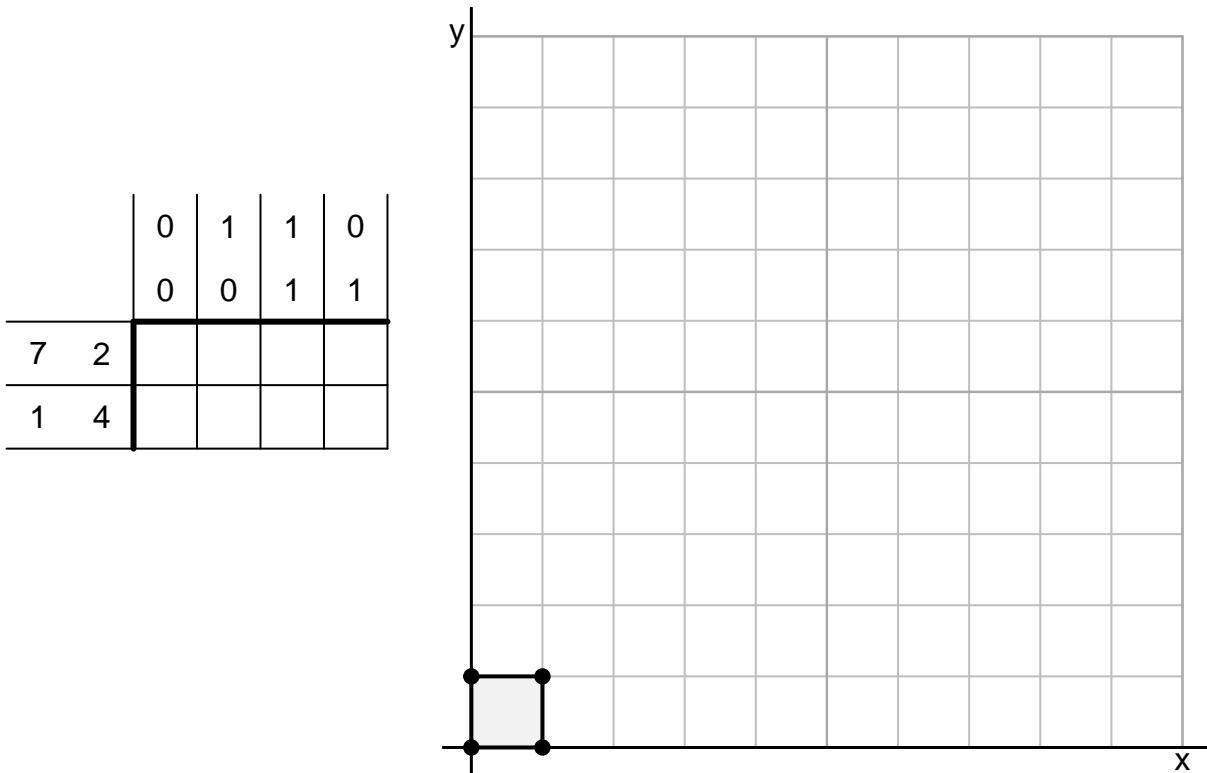
s19 Matrix Exam (practice v119)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 7 & 2 \\ 1 & 4 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

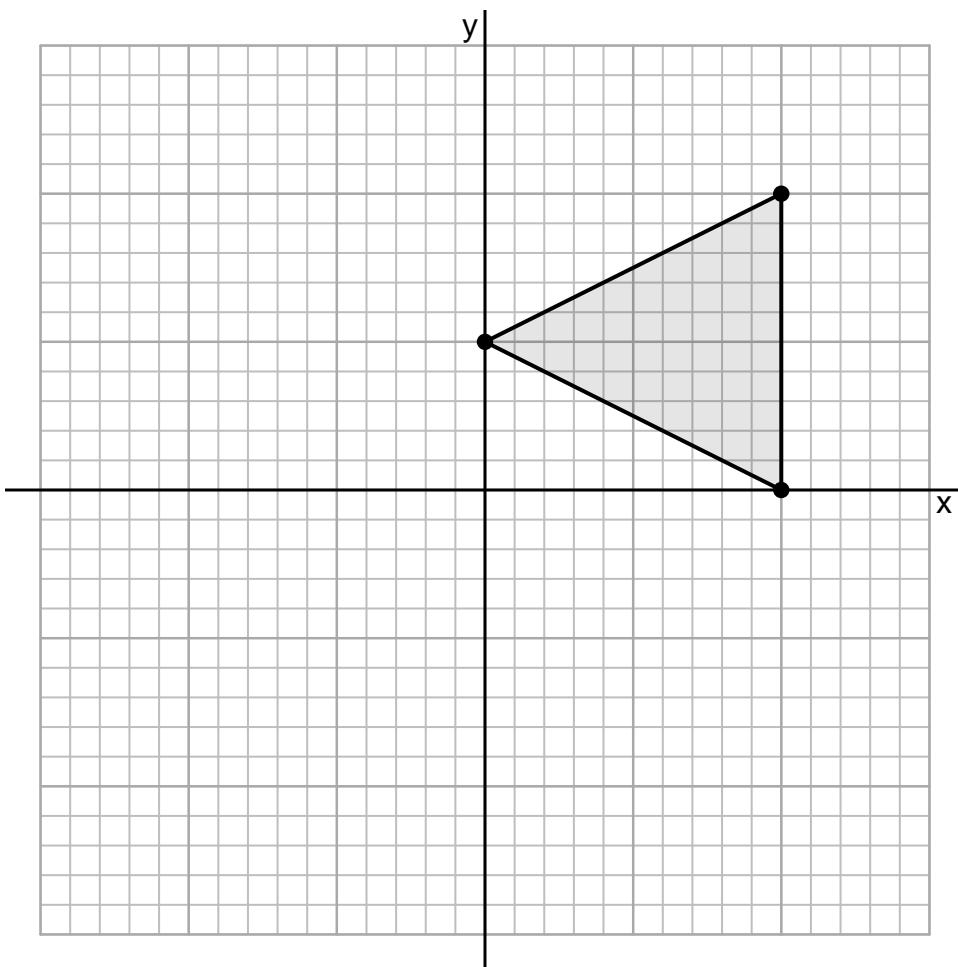


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 10 & 0 & 10 \\ 10 & 5 & 0 \end{bmatrix}$. In order to reflect over the y axis and then rotate by 143.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} 0.8 & -0.6 \\ -0.6 & -0.8 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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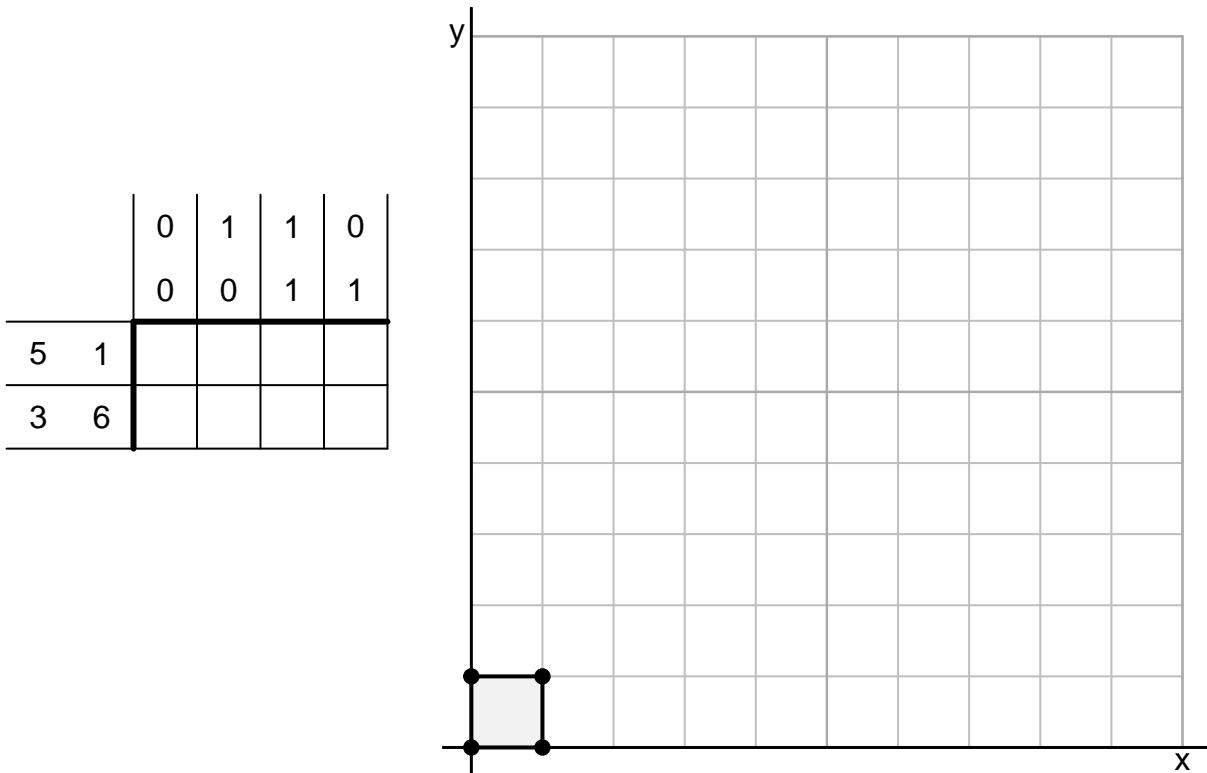
s19 Matrix Exam (practice v120)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 5 & 1 \\ 3 & 6 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

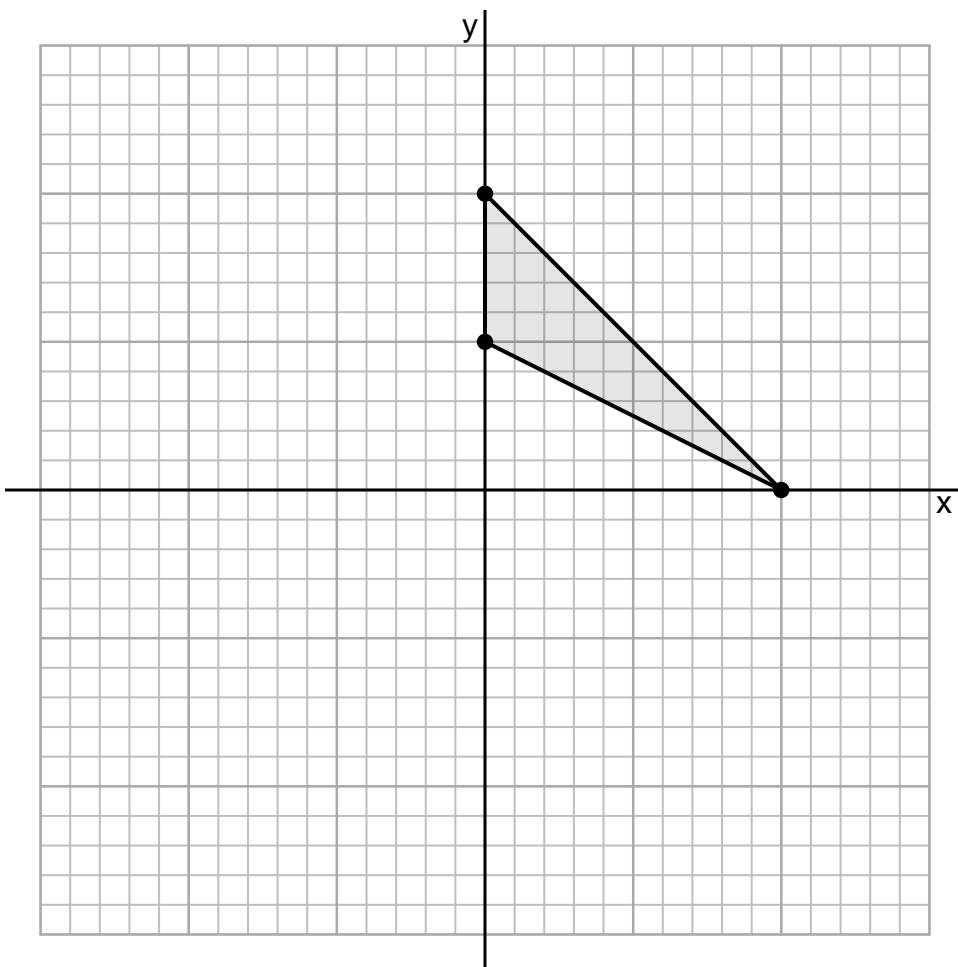


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 0 & 10 & 0 \\ 5 & 0 & 10 \end{bmatrix}$. In order to reflect over the y axis and then rotate by 36.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.8 & -0.6 \\ -0.6 & 0.8 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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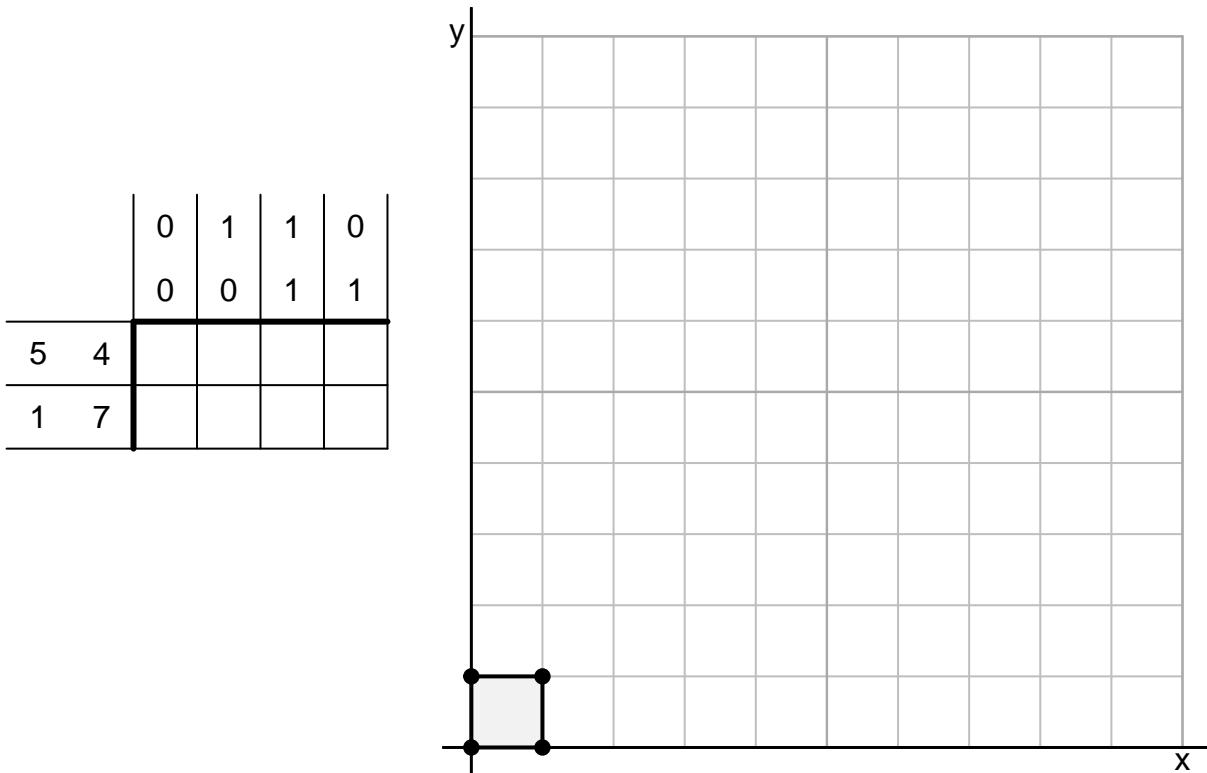
s19 Matrix Exam (practice v121)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 5 & 4 \\ 1 & 7 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

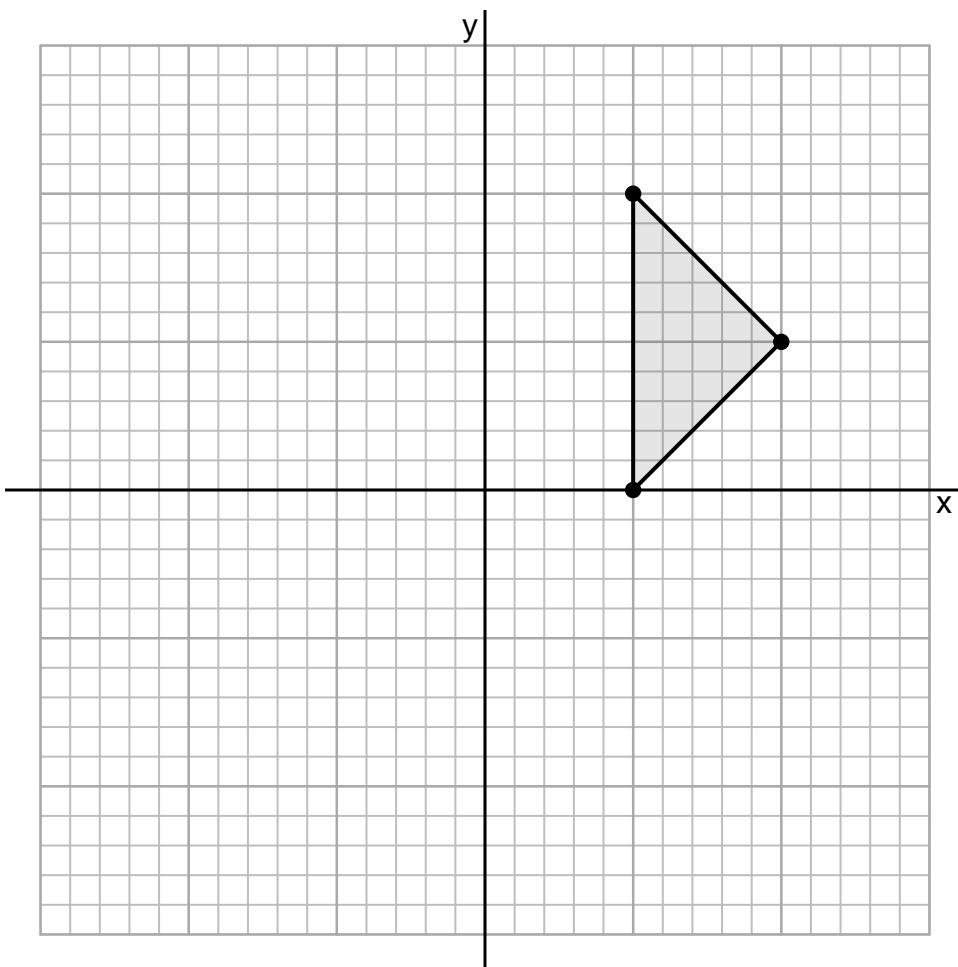


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 10 & 5 & 5 \\ 5 & 0 & 10 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 323.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} 0.8 & -0.6 \\ -0.6 & -0.8 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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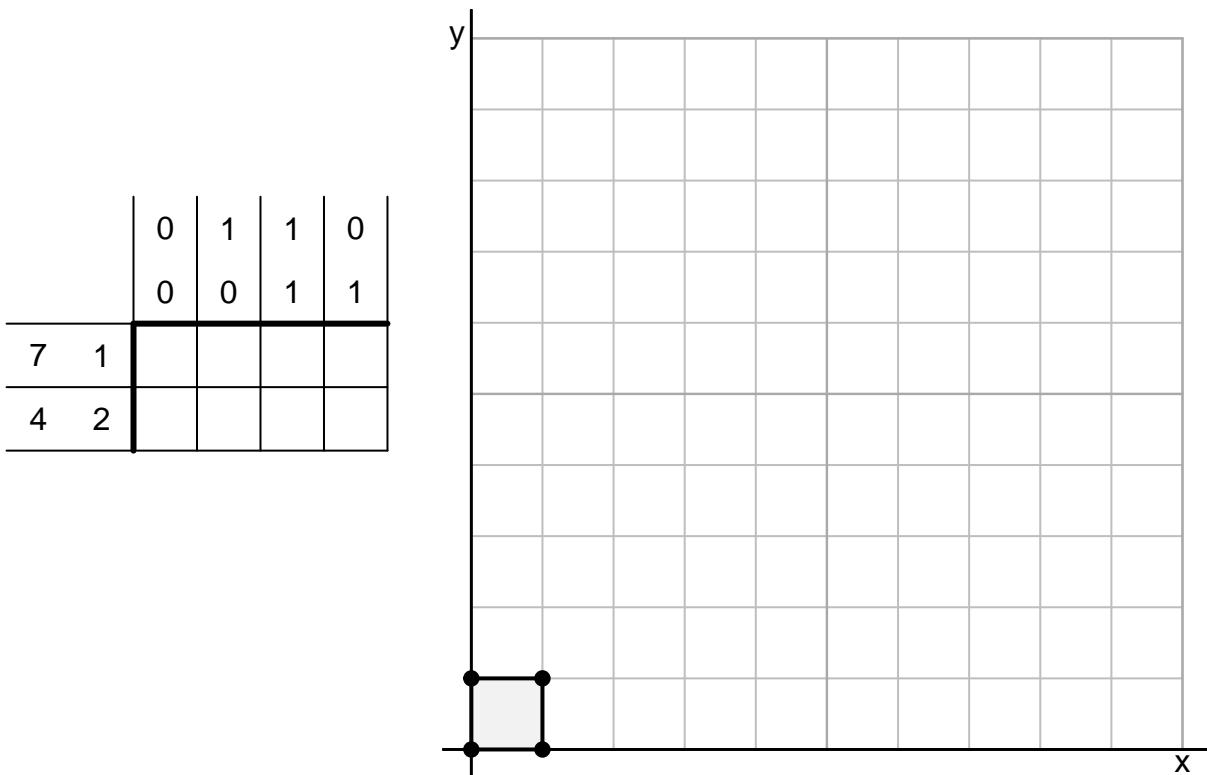
s19 Matrix Exam (practice v122)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 7 & 1 \\ 4 & 2 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

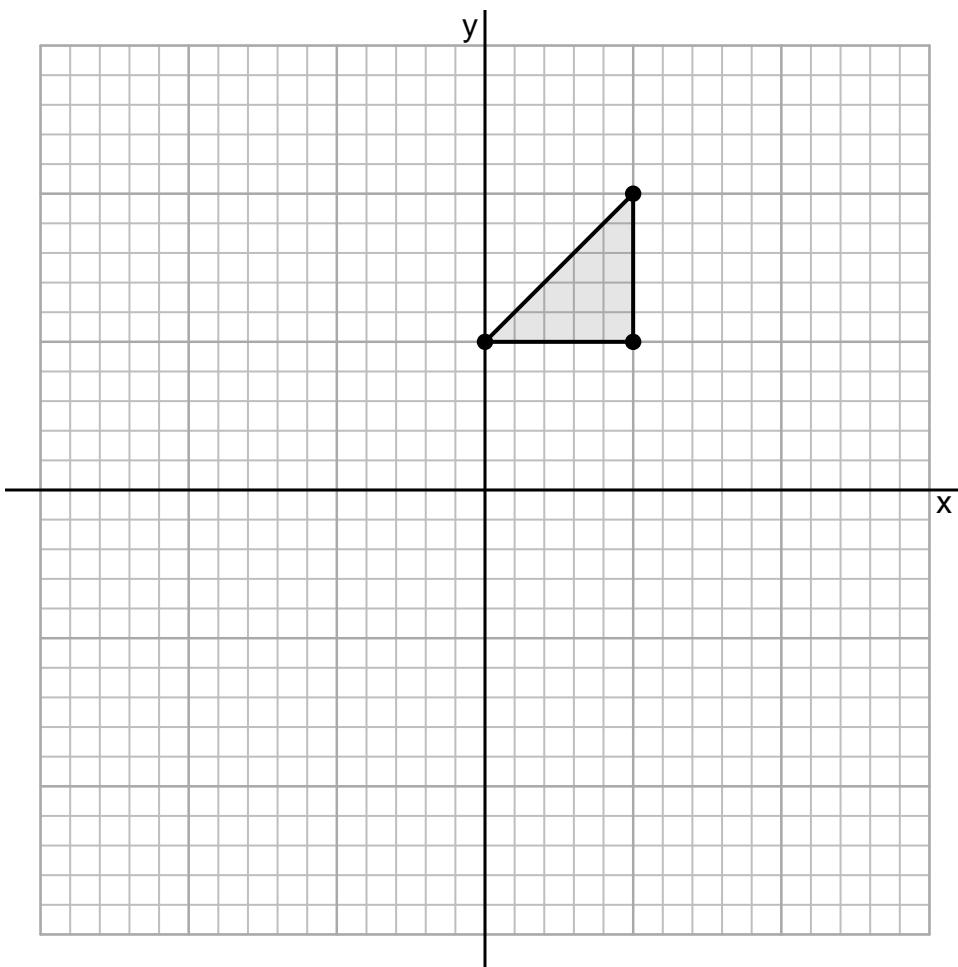


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 5 & 0 & 5 \\ 10 & 5 & 5 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 306.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} 0.6 & -0.8 \\ -0.8 & -0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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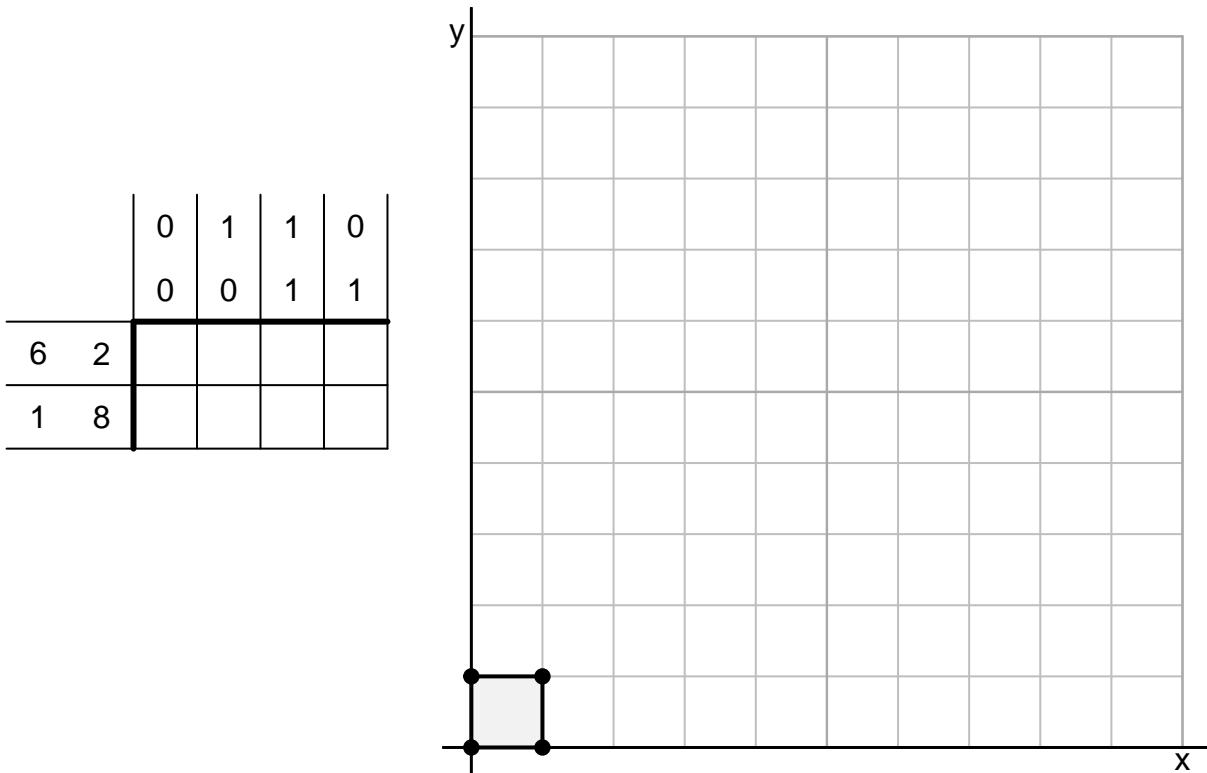
s19 Matrix Exam (practice v123)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 6 & 2 \\ 1 & 8 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

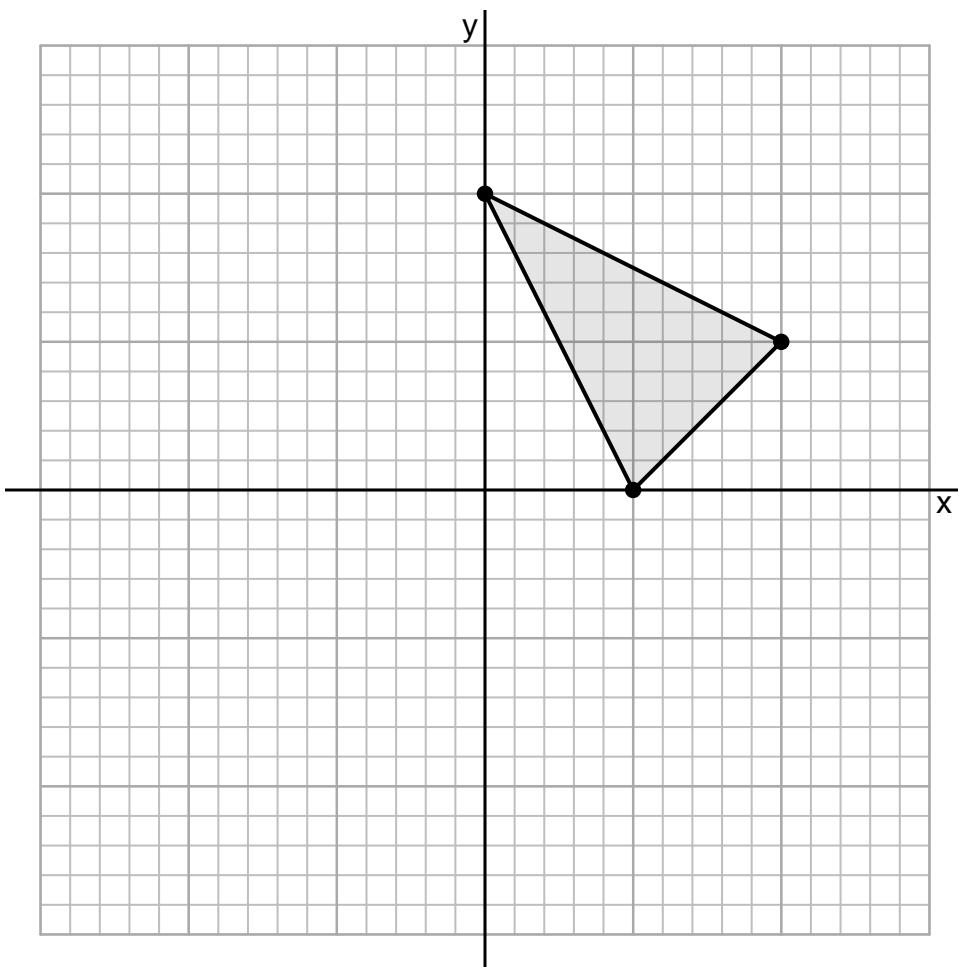


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 5 & 0 & 10 \\ 0 & 10 & 5 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 306.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} 0.6 & -0.8 \\ -0.8 & -0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



Name: _____

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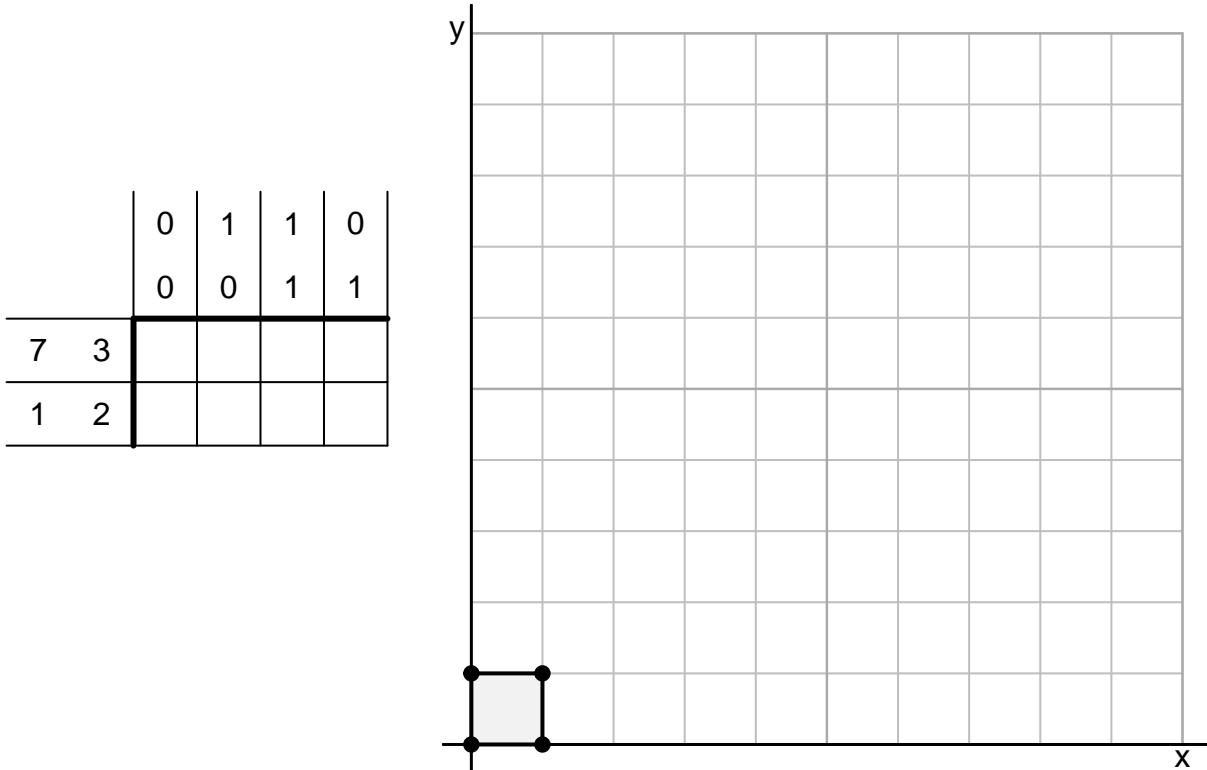
s19 Matrix Exam (practice v124)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 7 & 3 \\ 1 & 2 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

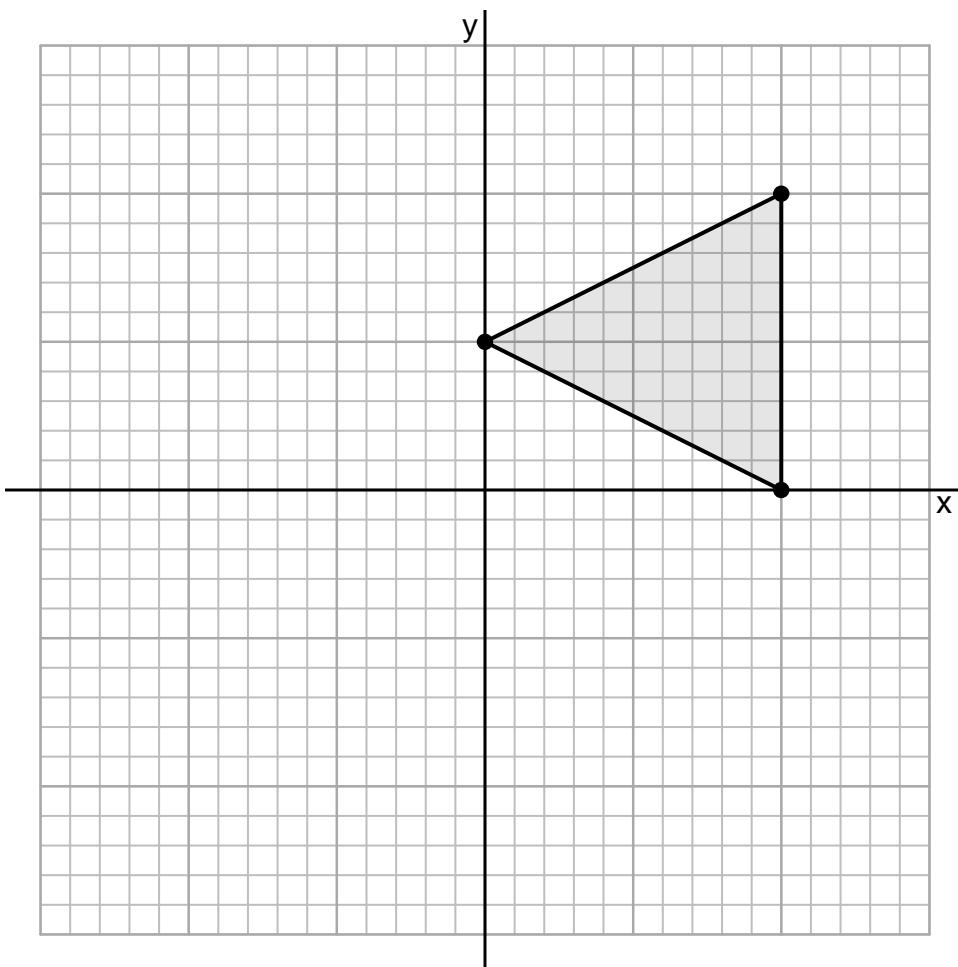


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 0 & 10 & 10 \\ 5 & 10 & 0 \end{bmatrix}$. In order to reflect over the y axis and then rotate by 53.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.6 & -0.8 \\ -0.8 & 0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



Name: _____

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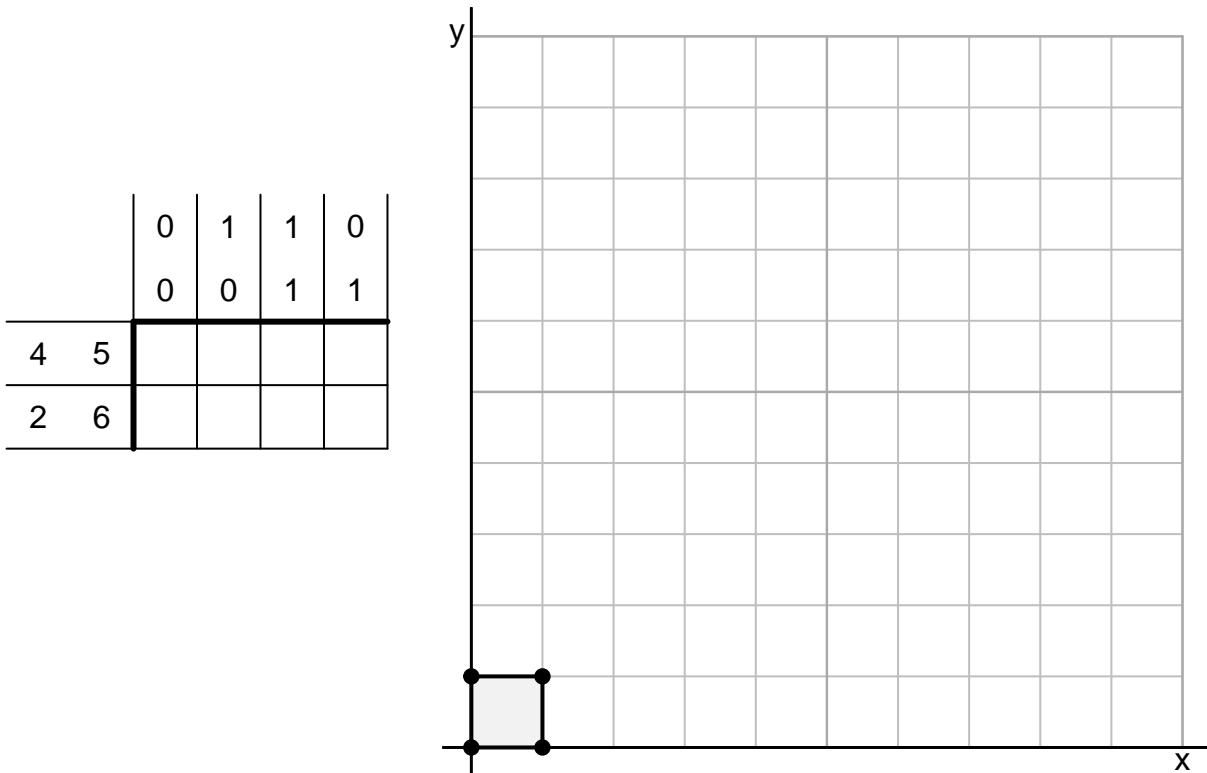
s19 Matrix Exam (practice v125)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 4 & 5 \\ 2 & 6 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

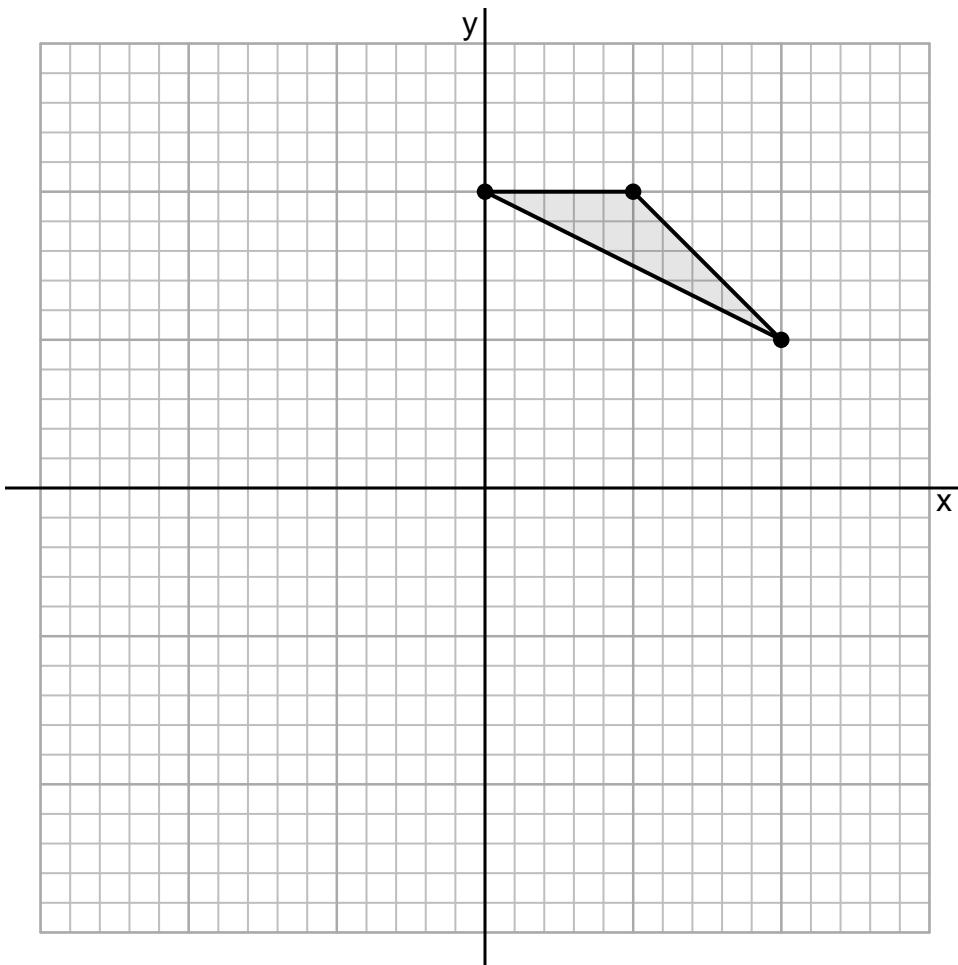


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 5 & 0 & 10 \\ 10 & 10 & 5 \end{bmatrix}$. In order to reflect over the y axis and then rotate by 36.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.8 & -0.6 \\ -0.6 & 0.8 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



Name: _____

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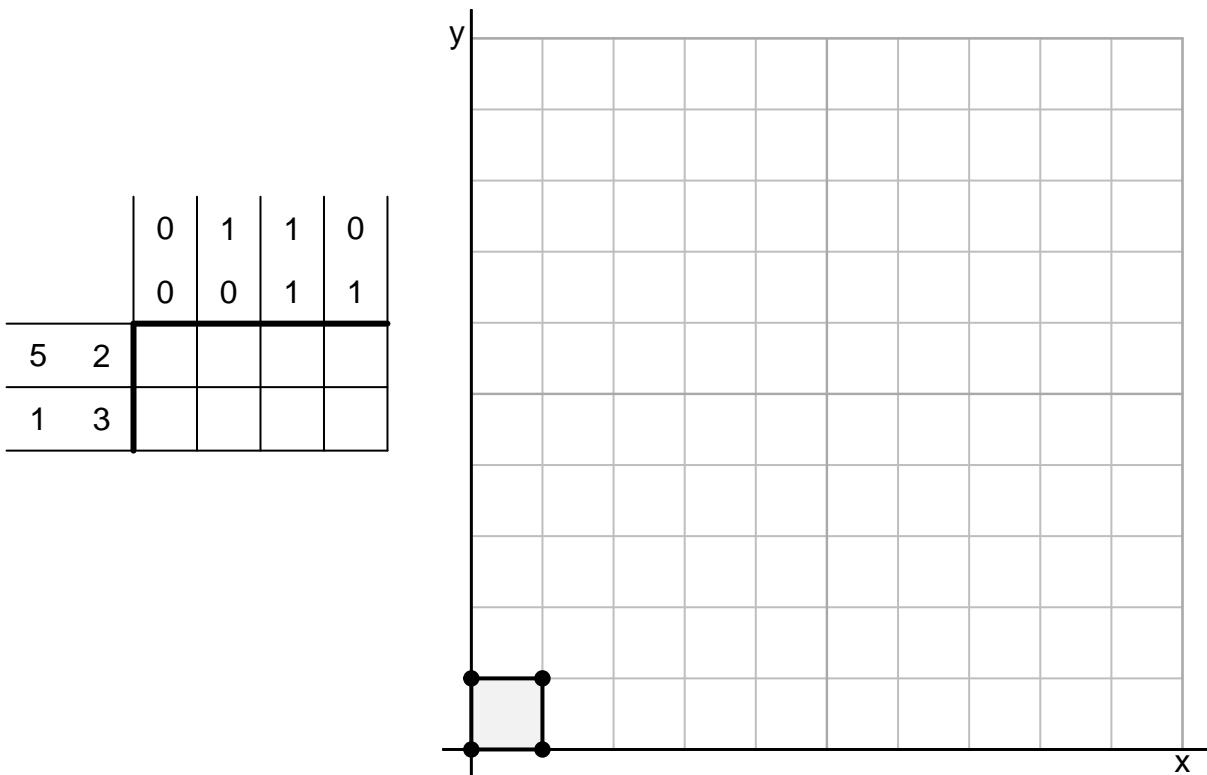
s19 Matrix Exam (practice v126)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 5 & 2 \\ 1 & 3 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

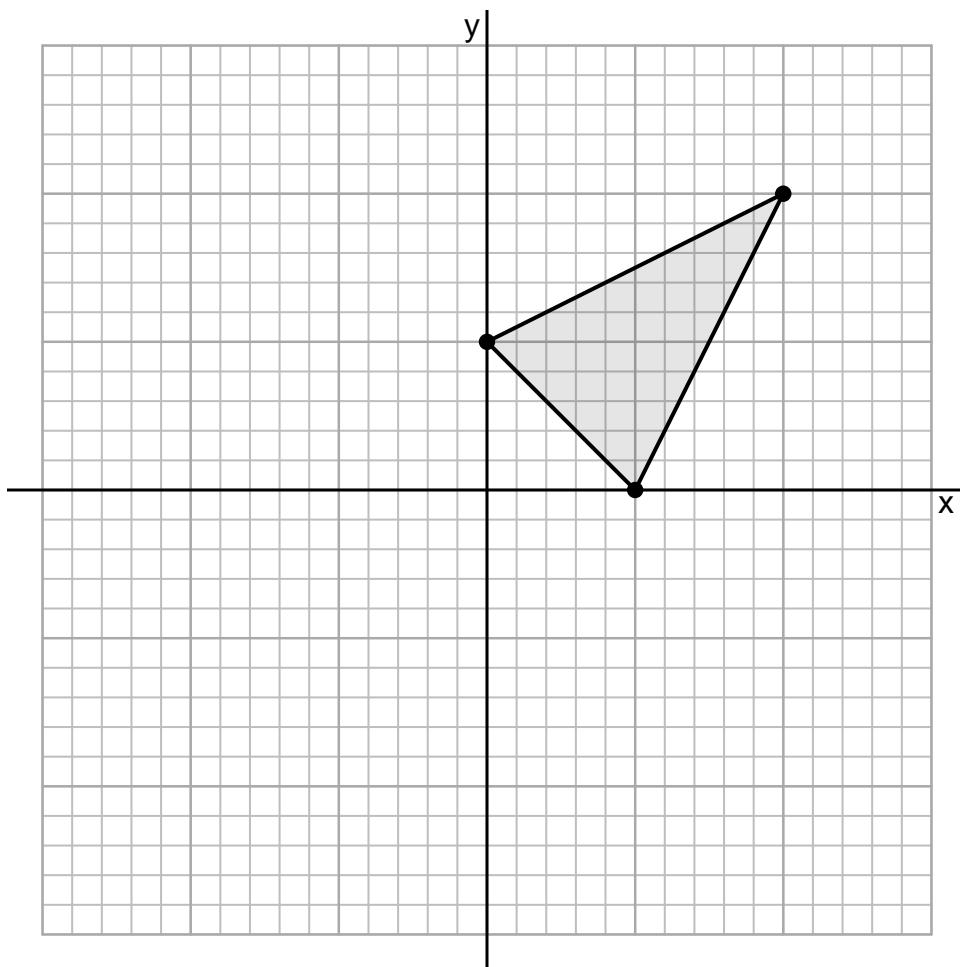


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 5 & 0 & 10 \\ 0 & 5 & 10 \end{bmatrix}$. In order to reflect over the x axis, reflect over the y axis, and then rotate by 36.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.8 & 0.6 \\ -0.6 & -0.8 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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s19 Matrix Exam (practice v127)

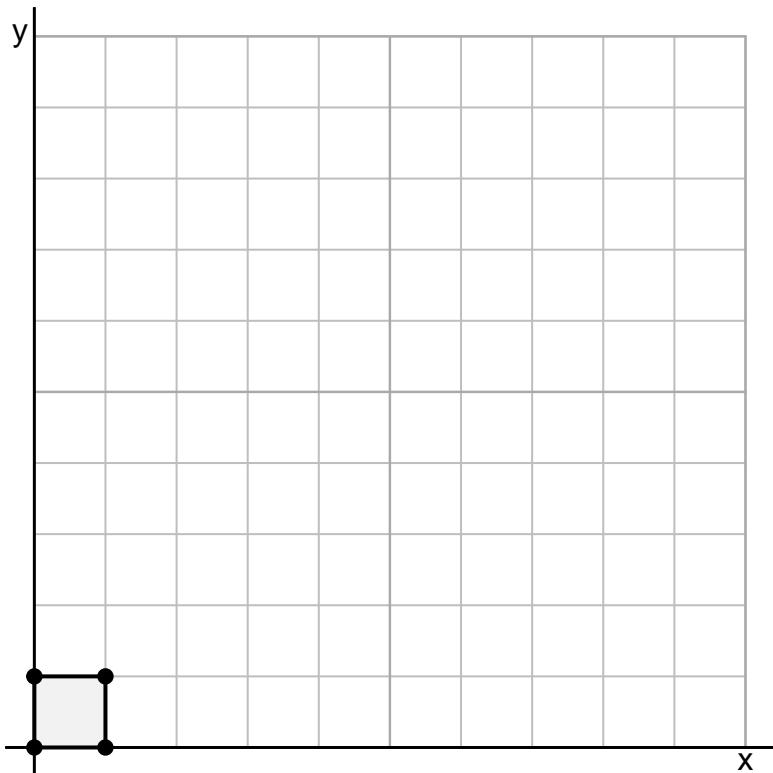
Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 4 & 6 \\ 2 & 8 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

$$\begin{array}{c|cccc} & 0 & 1 & 1 & 0 \\ & 0 & 0 & 1 & 1 \\ \hline 4 & 6 & & & \\ 2 & 8 & & & \end{array}$$

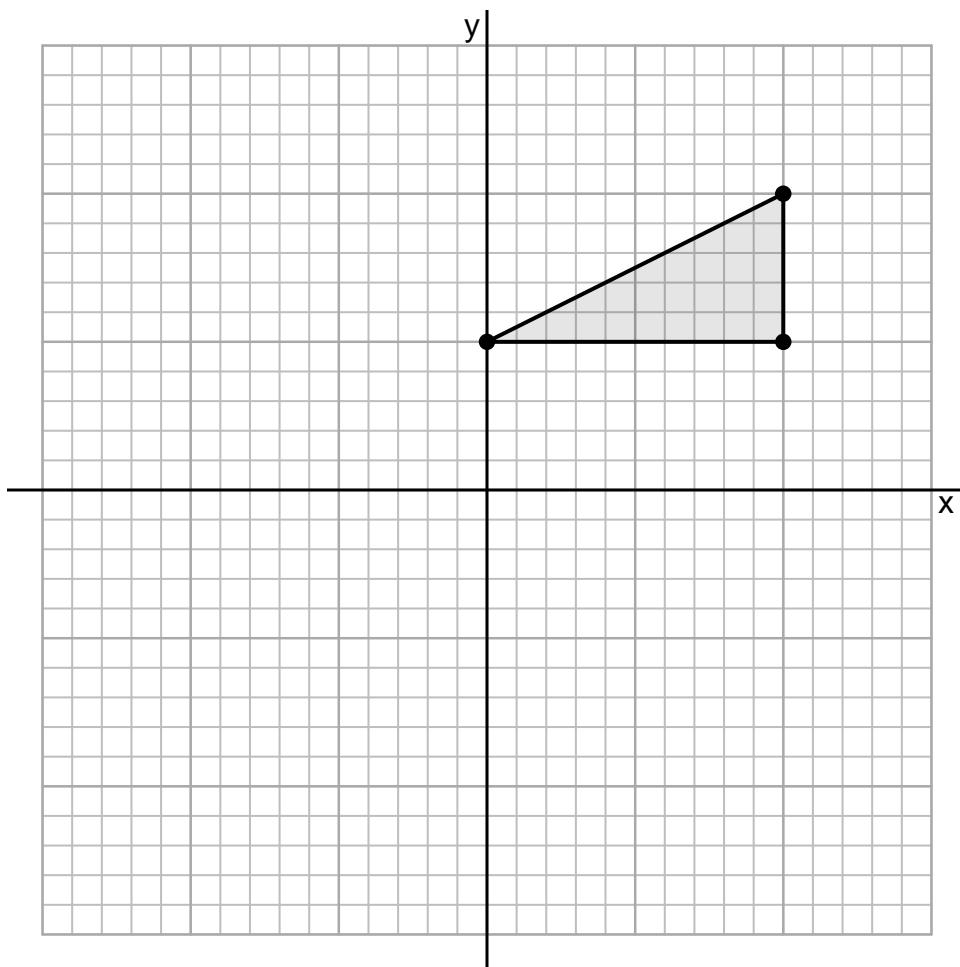


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 10 & 10 & 0 \\ 5 & 10 & 5 \end{bmatrix}$. In order to reflect over the x axis, reflect over the y axis, and then rotate by 323.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.8 & -0.6 \\ 0.6 & -0.8 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



Name: _____

Date: _____

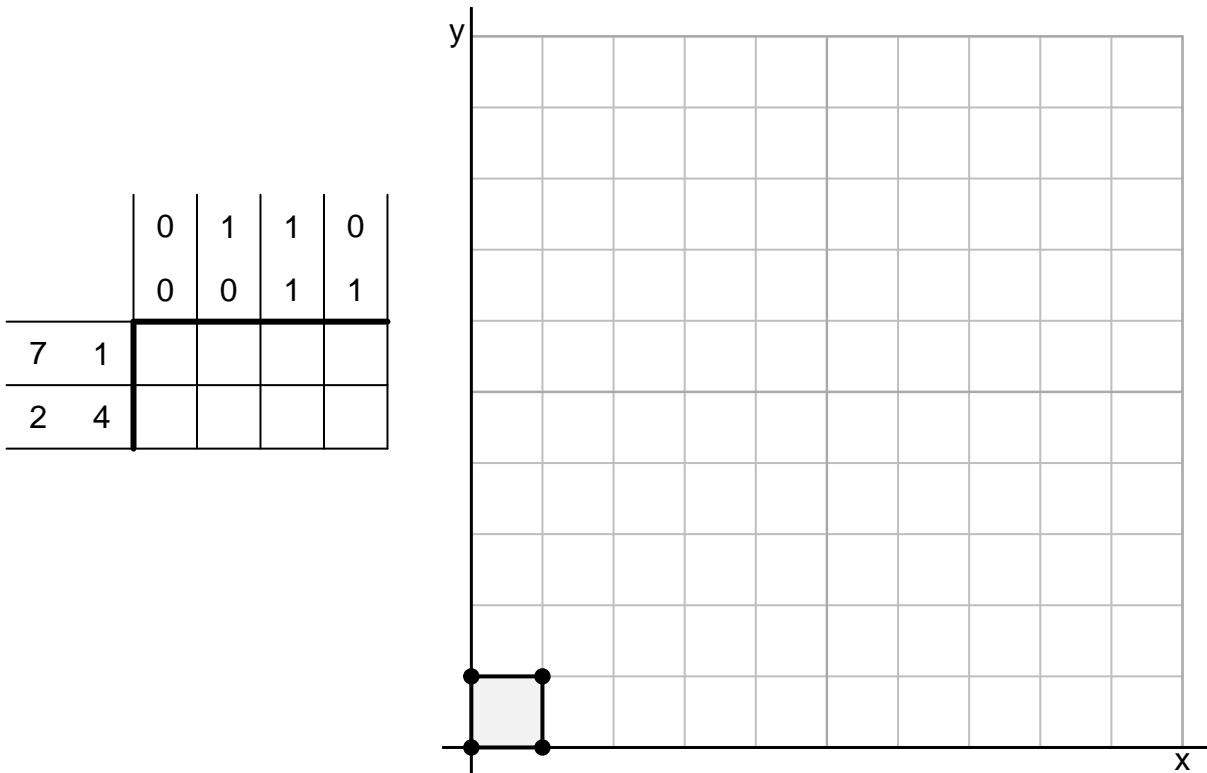
s19 Matrix Exam (practice v128)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 7 & 1 \\ 2 & 4 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

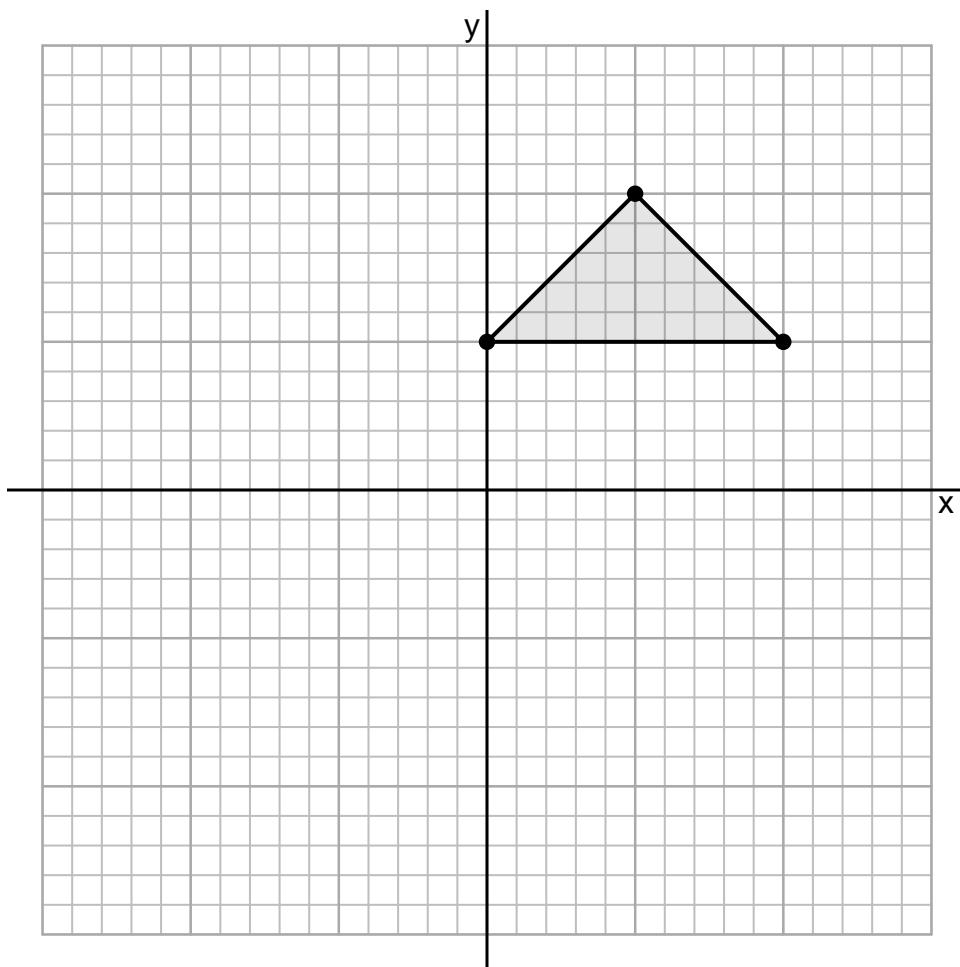


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 0 & 10 & 5 \\ 5 & 5 & 10 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 233.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.6 & -0.8 \\ -0.8 & 0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



Name: _____

Date: _____

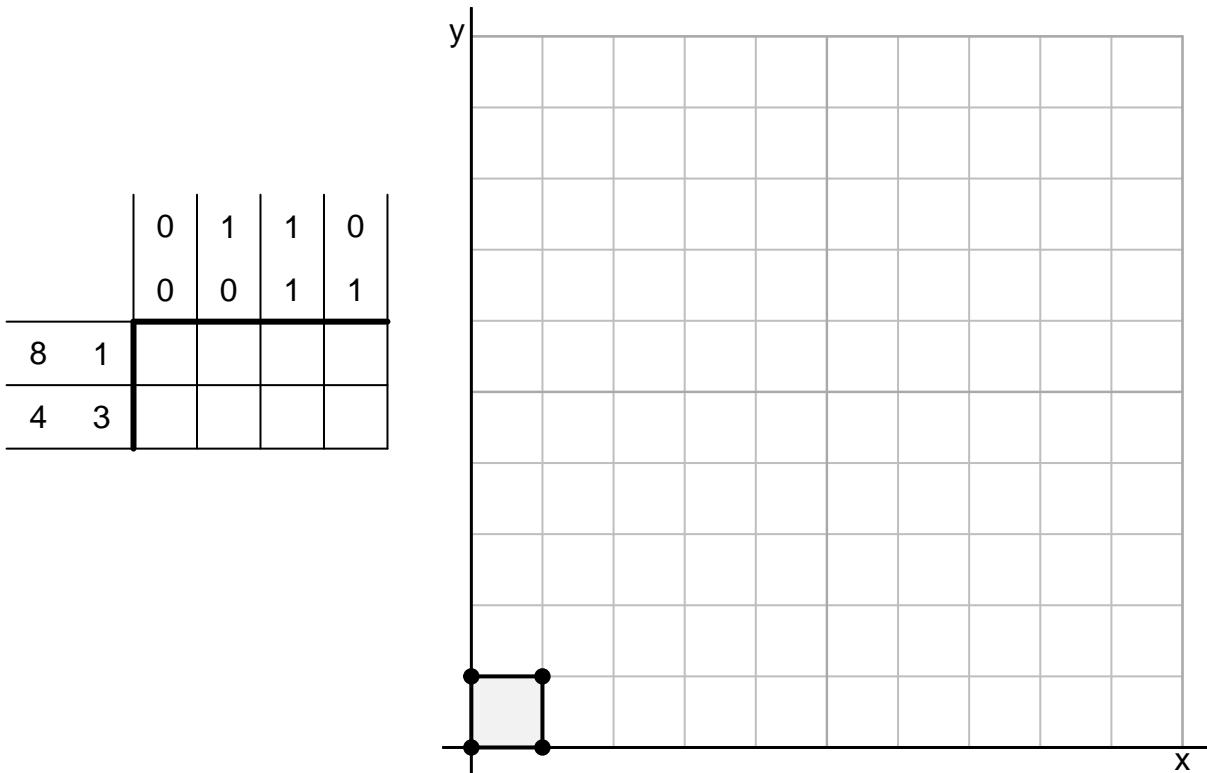
s19 Matrix Exam (practice v129)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 8 & 1 \\ 4 & 3 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

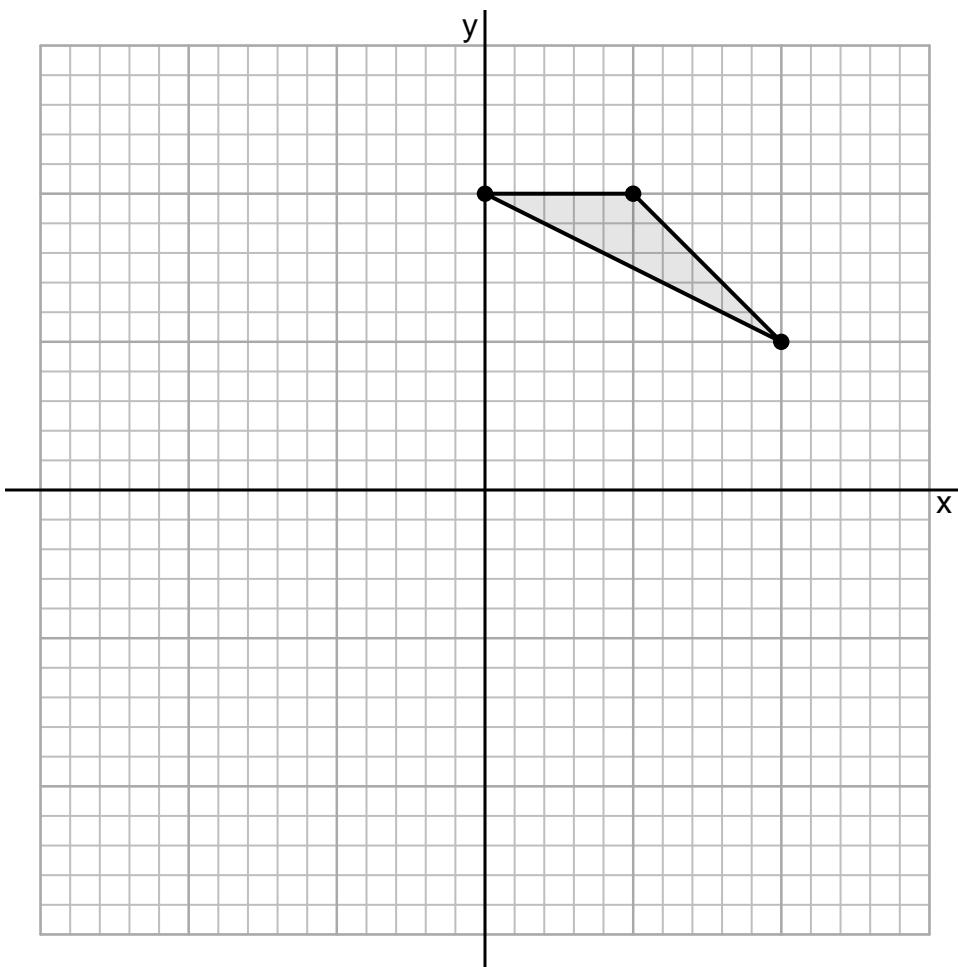


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 10 & 0 & 5 \\ 5 & 10 & 10 \end{bmatrix}$. In order to reflect over the x axis, reflect over the y axis, and then rotate by 53.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.6 & 0.8 \\ -0.8 & -0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



Name: _____

Date: _____

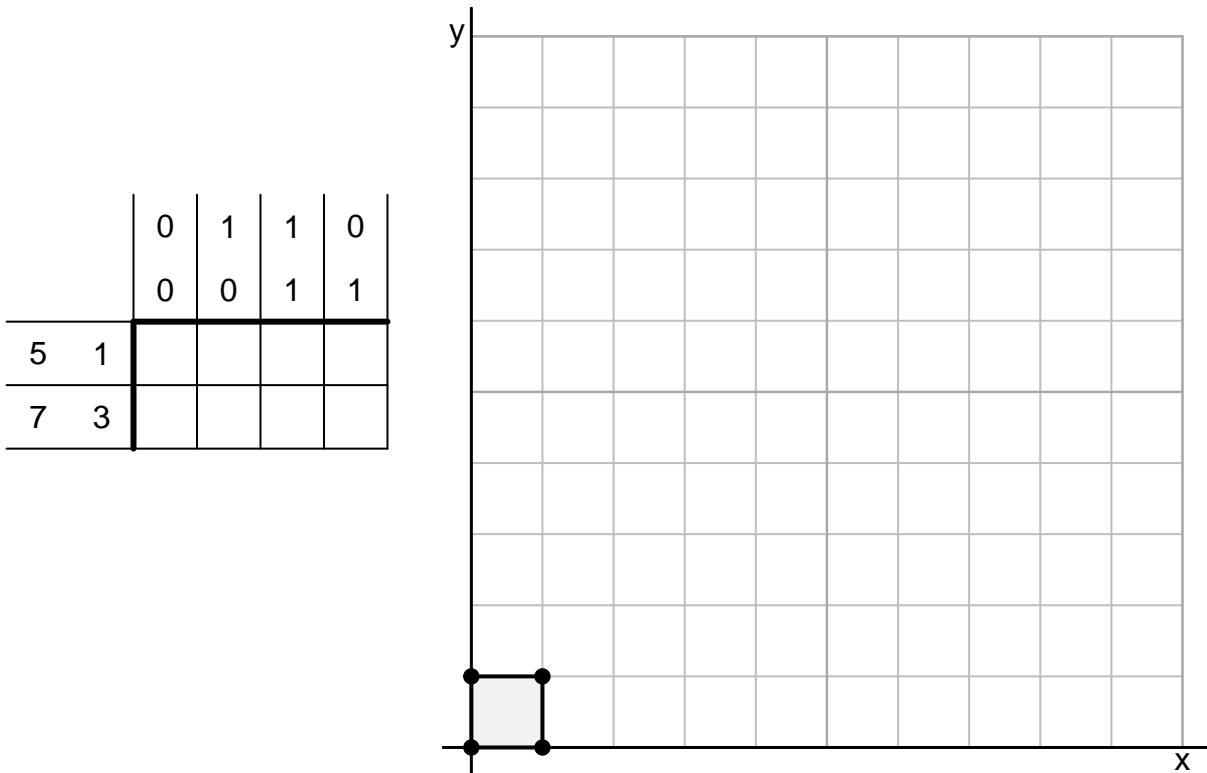
s19 Matrix Exam (practice v130)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 5 & 1 \\ 7 & 3 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

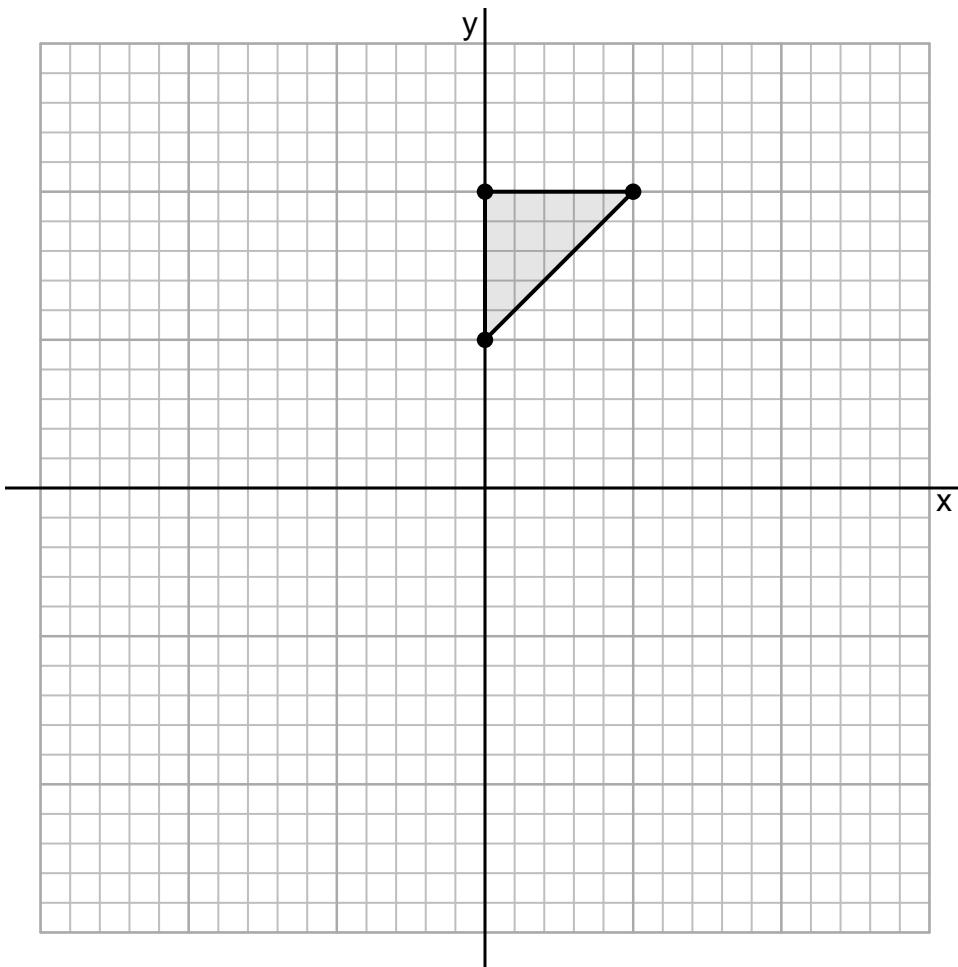


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 0 & 0 & 5 \\ 5 & 10 & 10 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 53.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} 0.6 & 0.8 \\ 0.8 & -0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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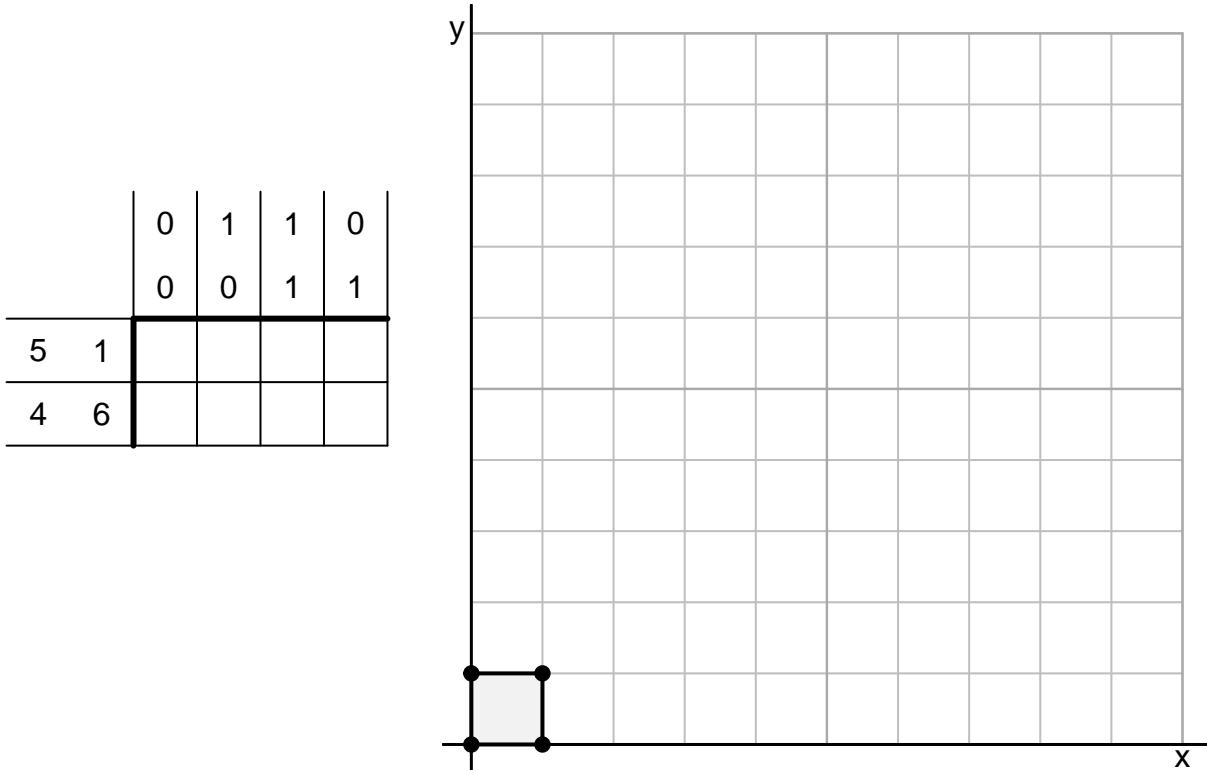
s19 Matrix Exam (practice v131)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 5 & 1 \\ 4 & 6 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

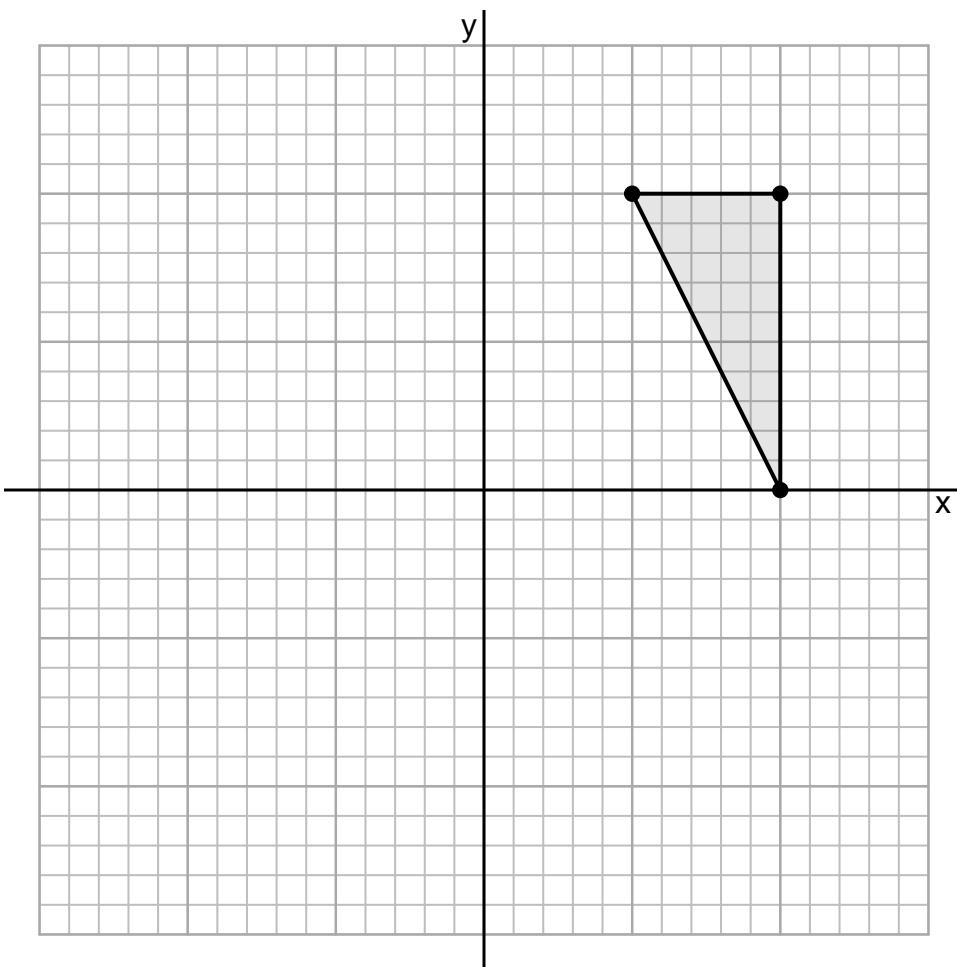


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 10 & 10 & 5 \\ 10 & 0 & 10 \end{bmatrix}$. In order to reflect over the x axis, reflect over the y axis, and then rotate by 306.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.6 & -0.8 \\ 0.8 & -0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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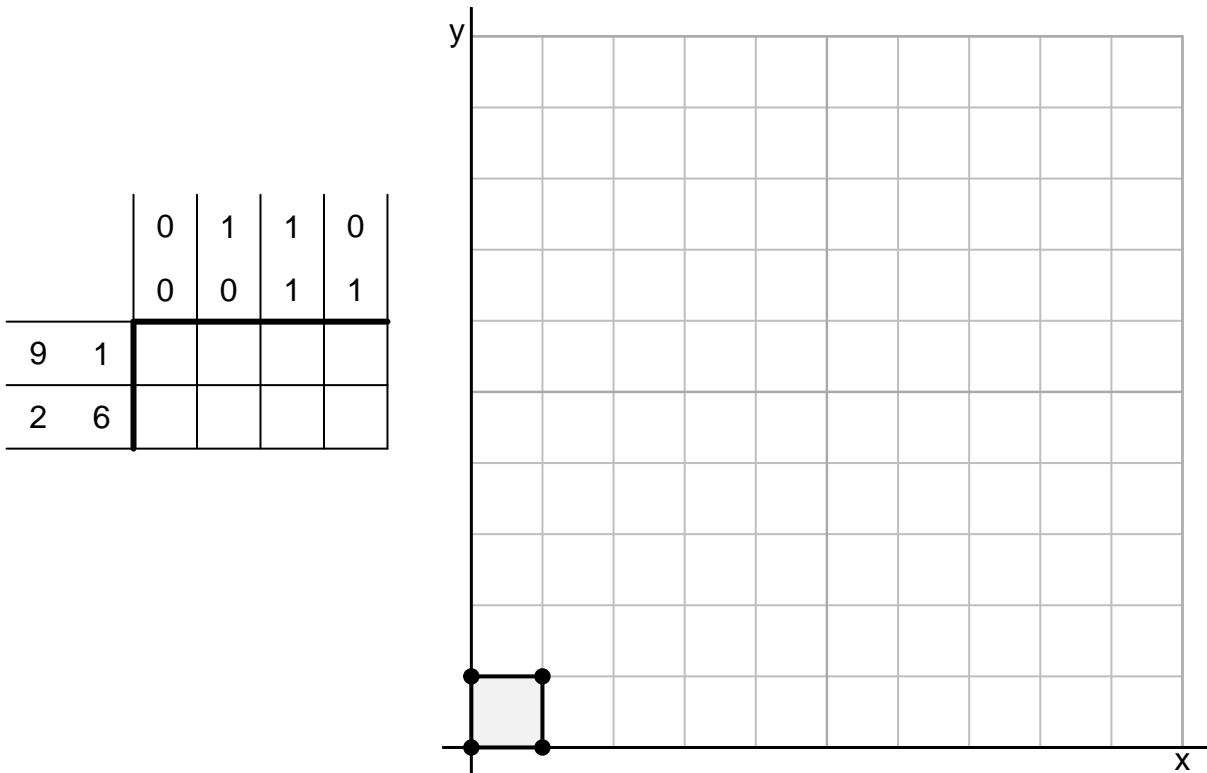
s19 Matrix Exam (practice v132)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 9 & 1 \\ 2 & 6 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

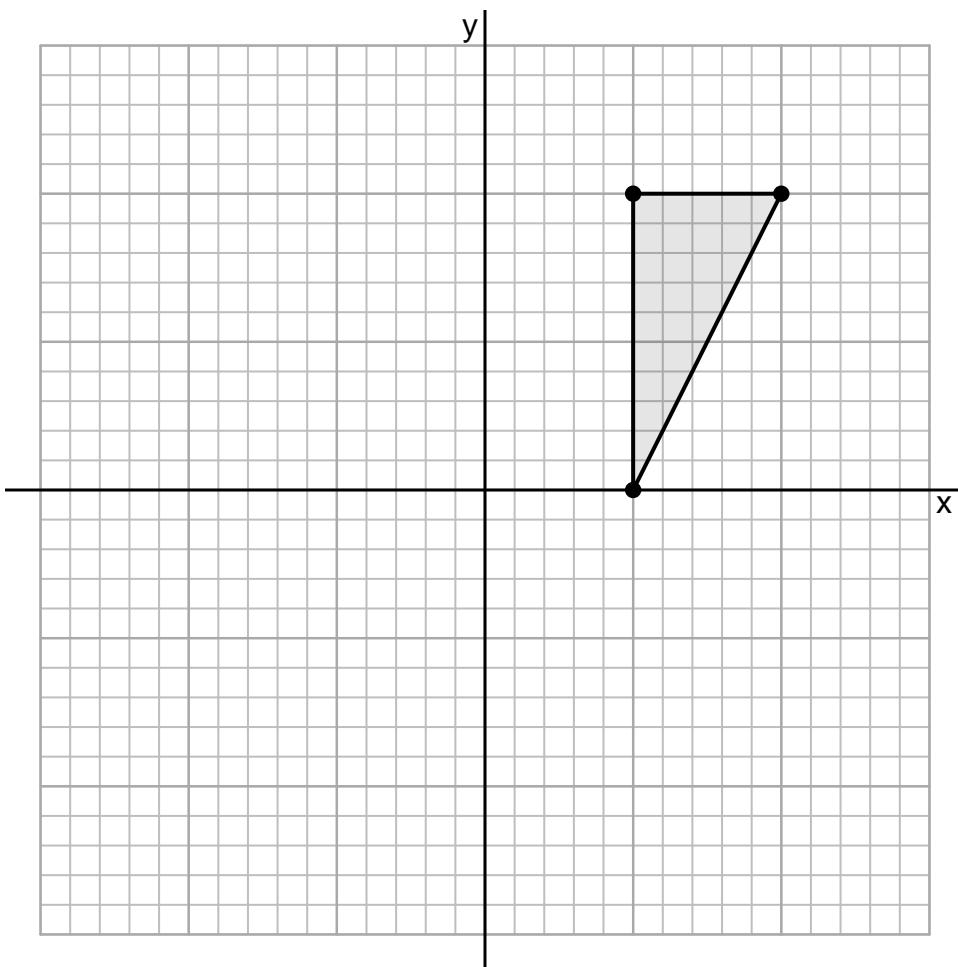


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 5 & 10 & 5 \\ 0 & 10 & 10 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 306.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} 0.6 & -0.8 \\ -0.8 & -0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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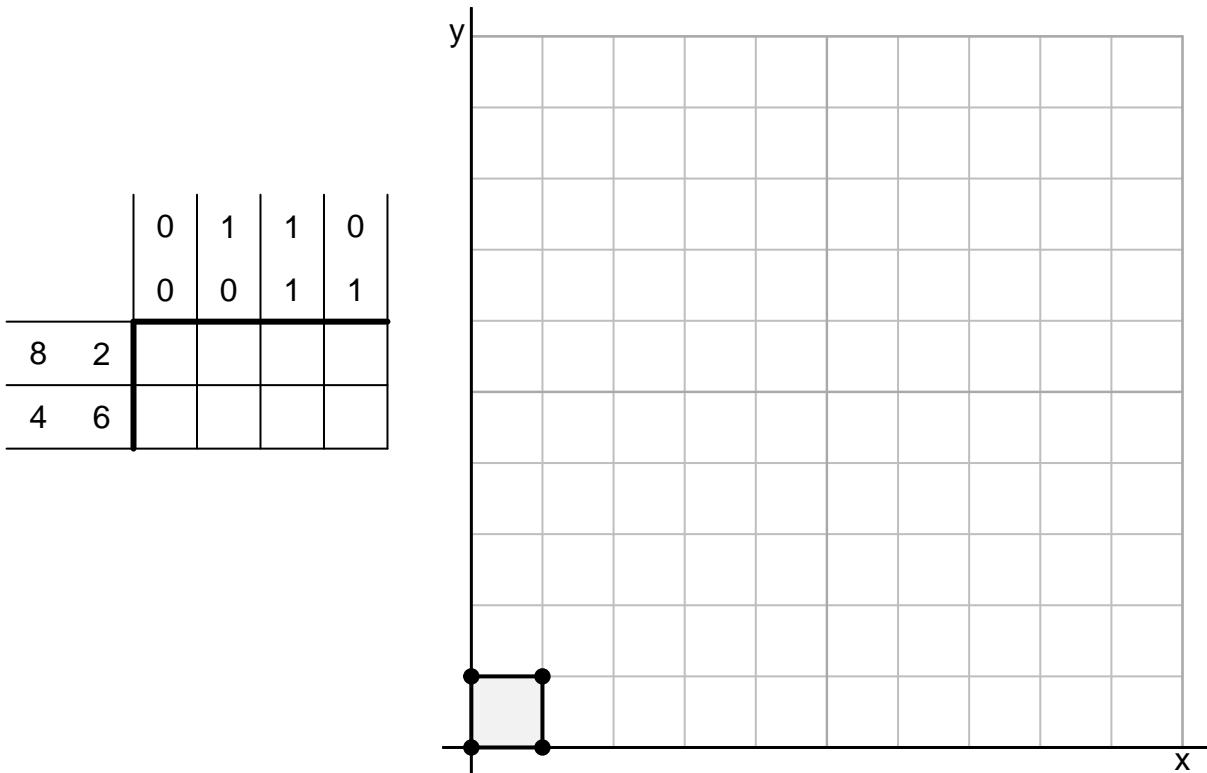
s19 Matrix Exam (practice v133)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 8 & 2 \\ 4 & 6 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

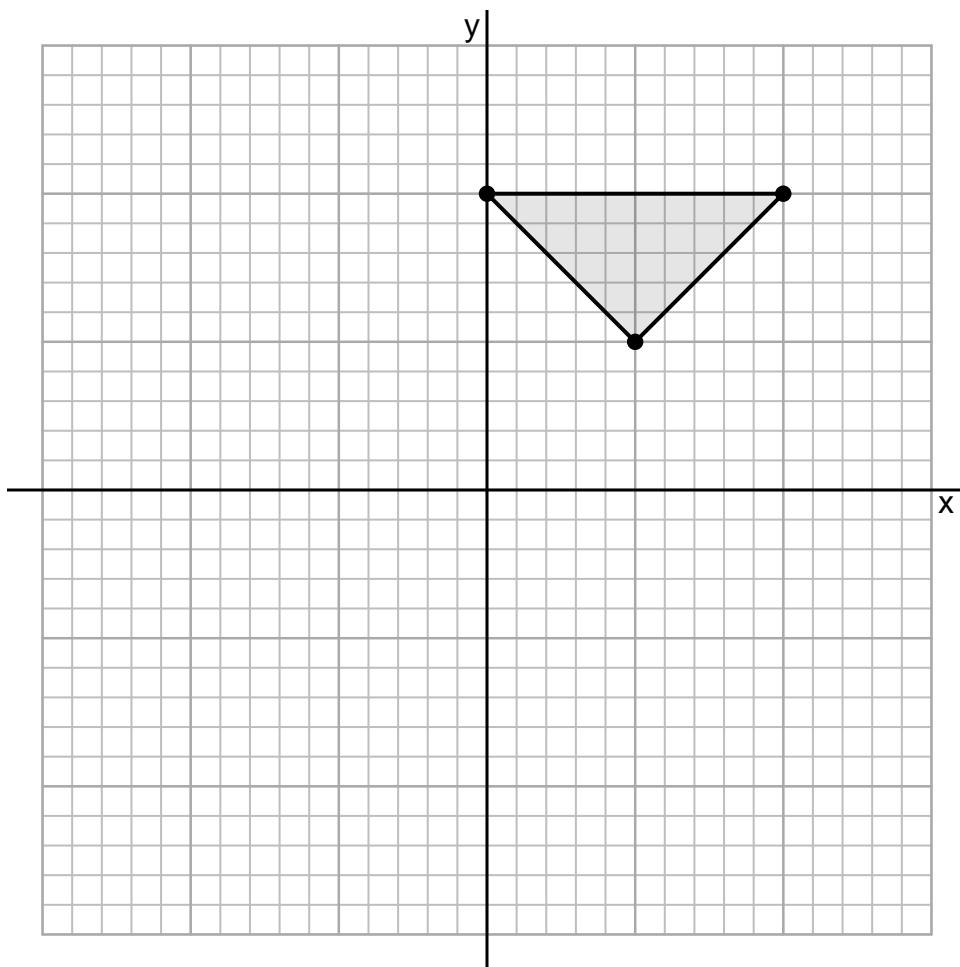


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 0 & 10 & 5 \\ 10 & 10 & 5 \end{bmatrix}$. In order to reflect over the x axis, reflect over the y axis, and then rotate by 36.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.8 & 0.6 \\ -0.6 & -0.8 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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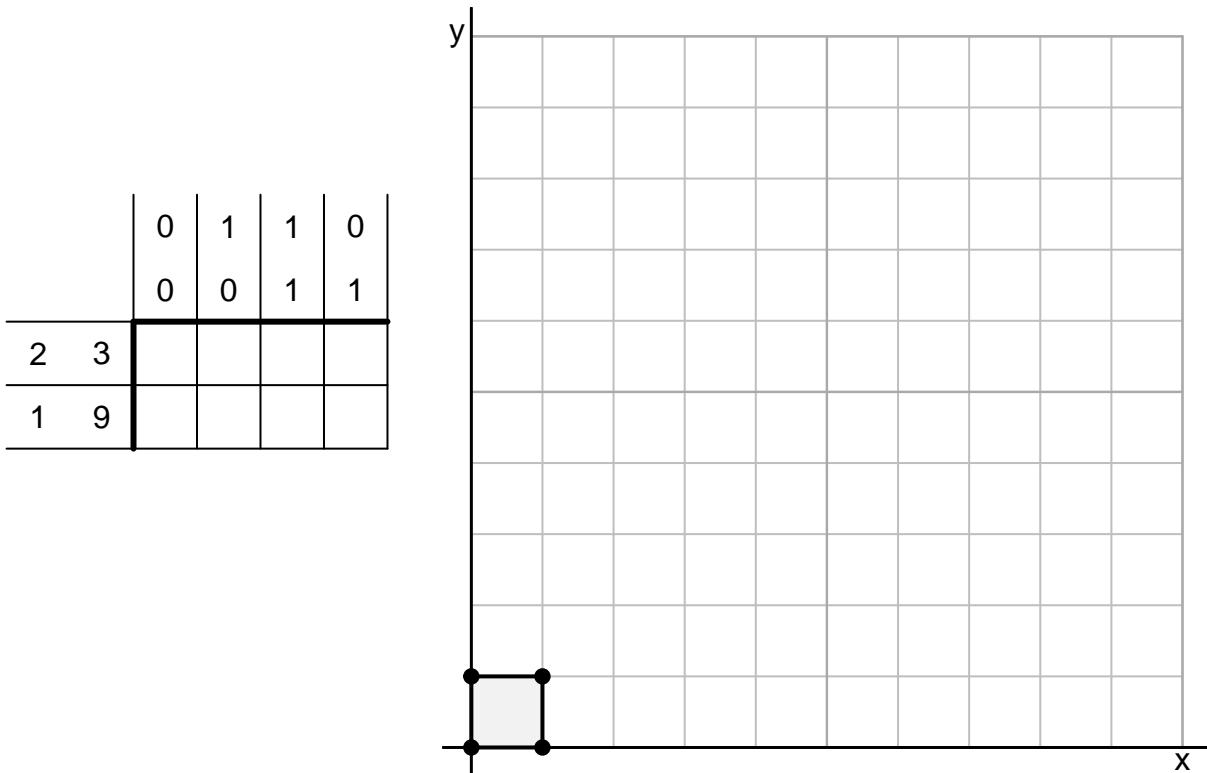
s19 Matrix Exam (practice v134)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 2 & 3 \\ 1 & 9 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

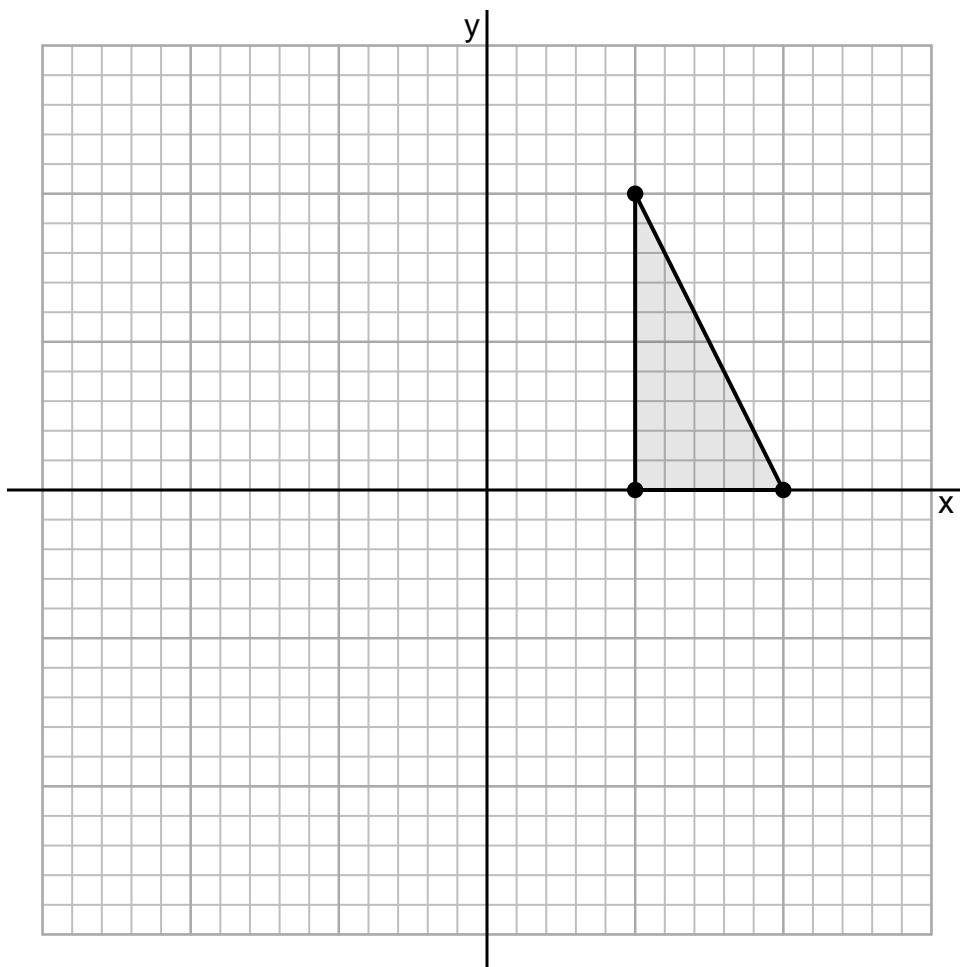


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 10 & 5 & 5 \\ 0 & 0 & 10 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 216.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.8 & -0.6 \\ -0.6 & 0.8 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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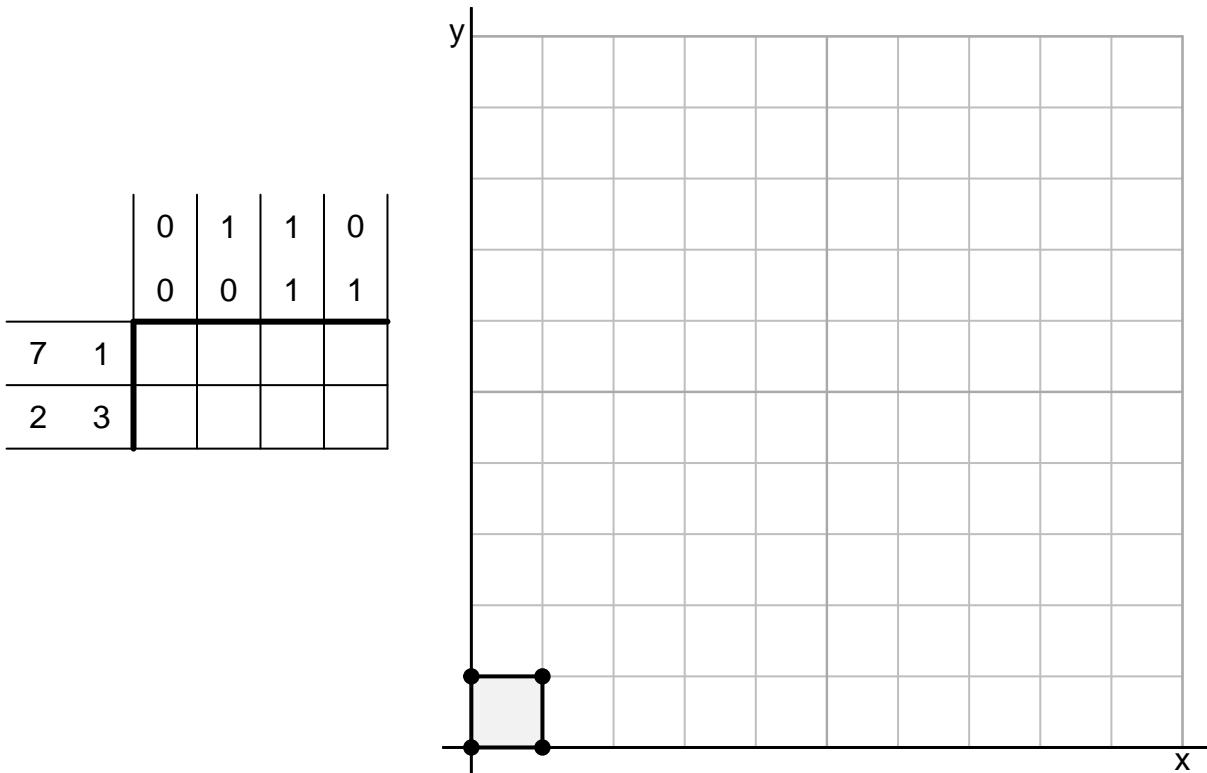
s19 Matrix Exam (practice v135)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 7 & 1 \\ 2 & 3 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

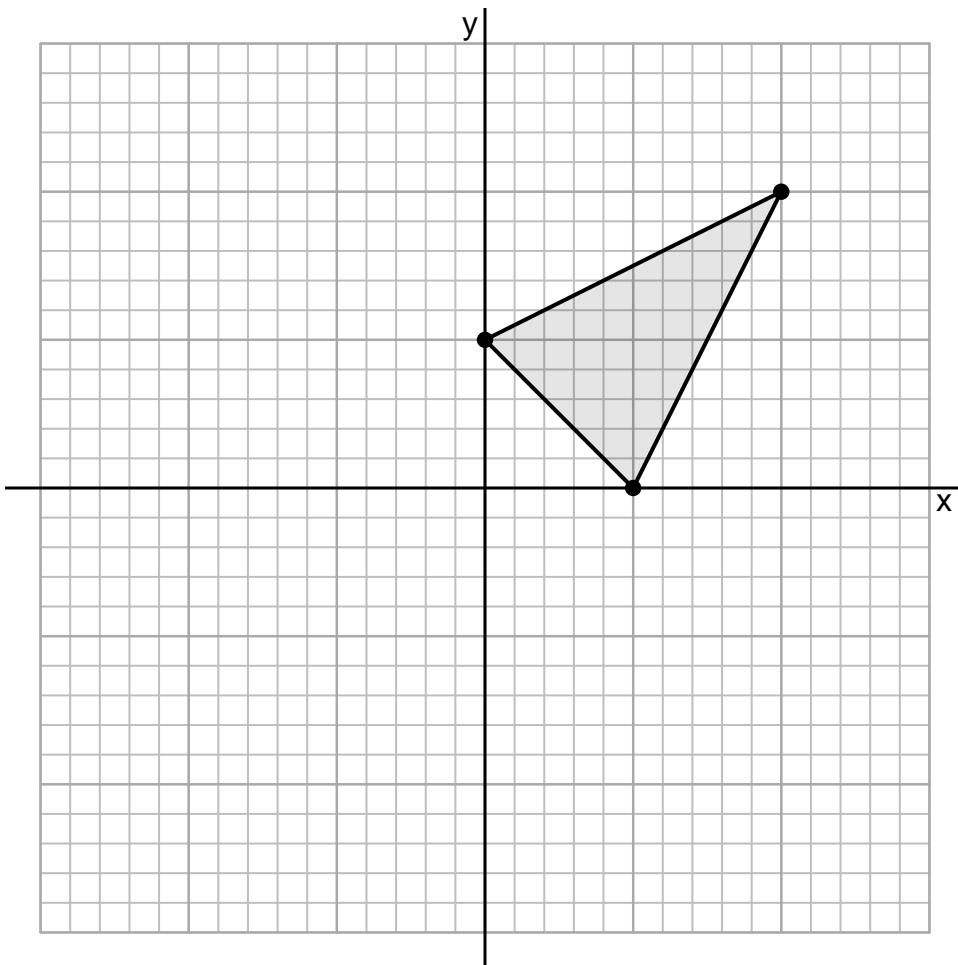


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 5 & 10 & 0 \\ 0 & 10 & 5 \end{bmatrix}$. In order to reflect over the y axis and then rotate by 36.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.8 & -0.6 \\ -0.6 & 0.8 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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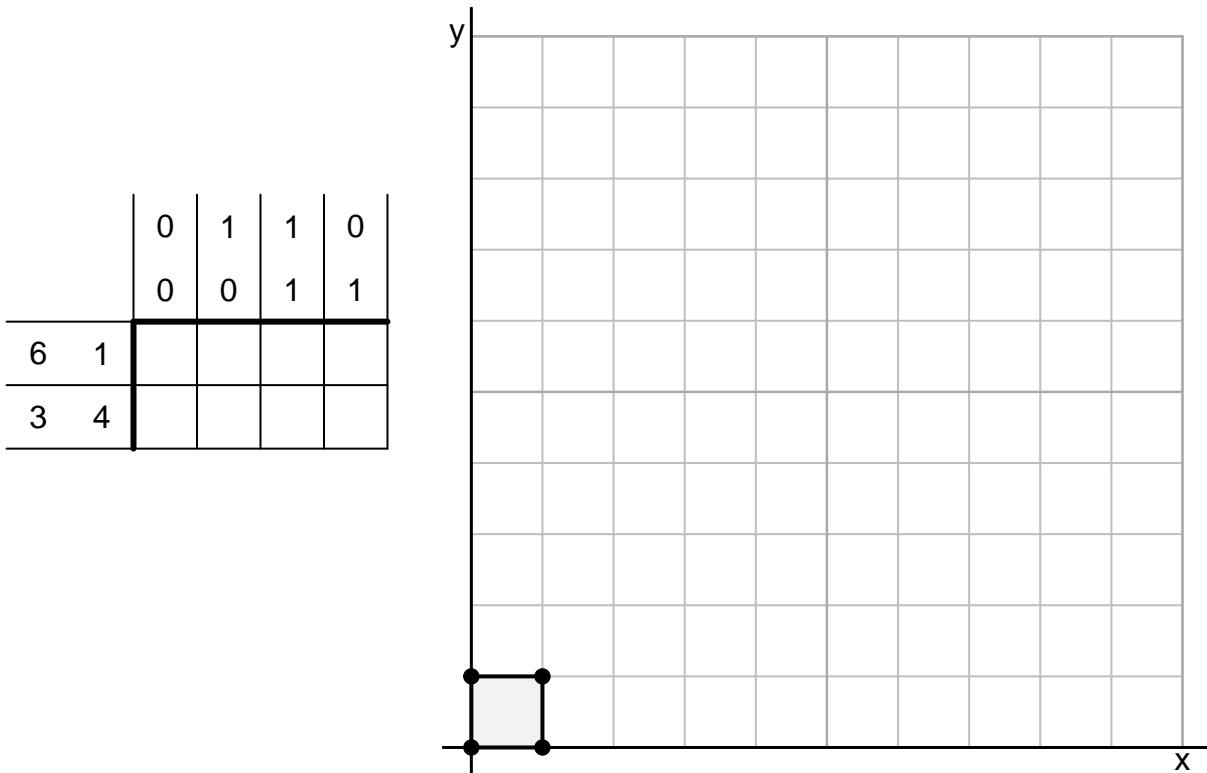
s19 Matrix Exam (practice v136)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 6 & 1 \\ 3 & 4 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

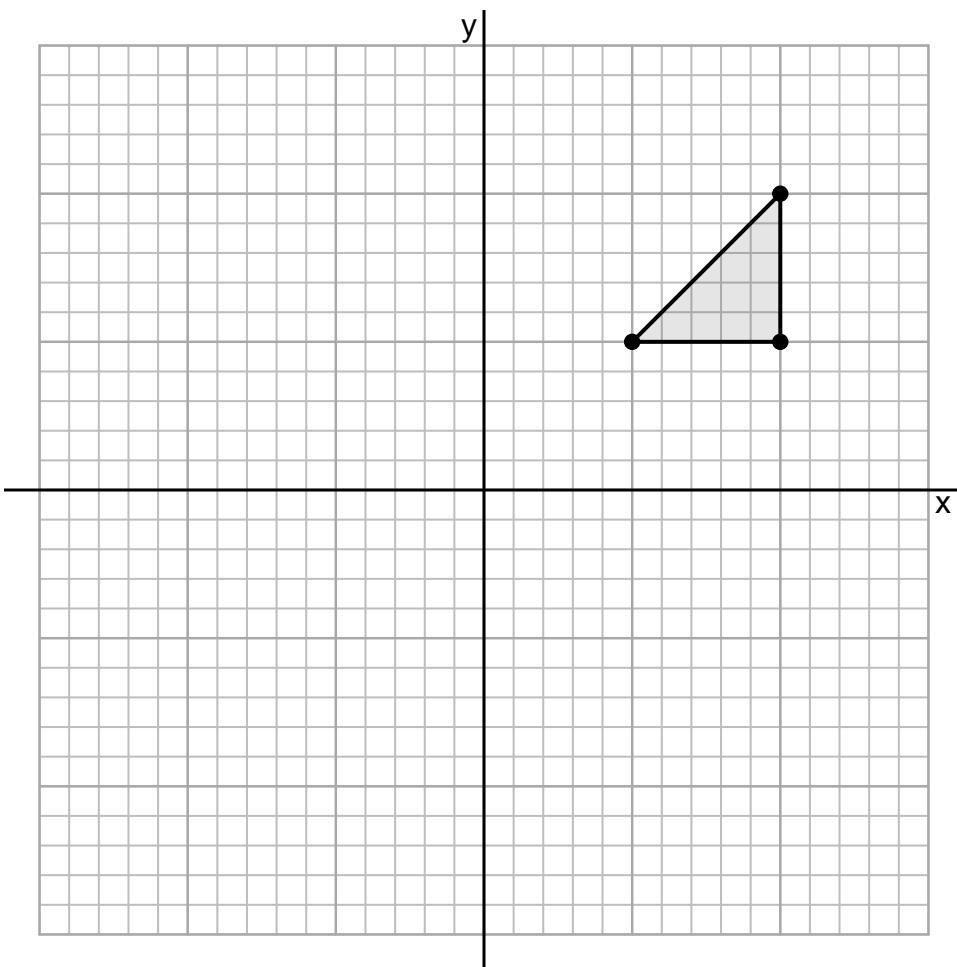


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 10 & 5 & 10 \\ 5 & 5 & 10 \end{bmatrix}$. In order to reflect over the x axis, reflect over the y axis, and then rotate by 126.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} 0.6 & 0.8 \\ -0.8 & 0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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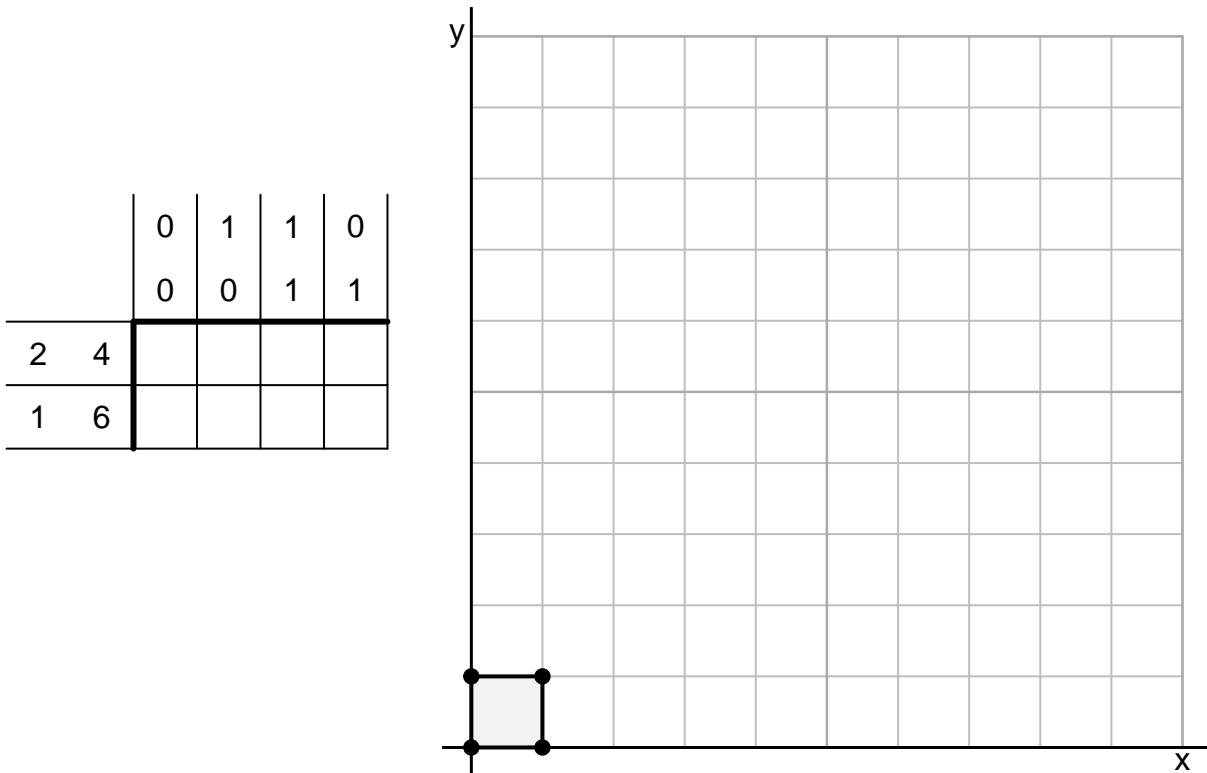
s19 Matrix Exam (practice v137)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 2 & 4 \\ 1 & 6 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

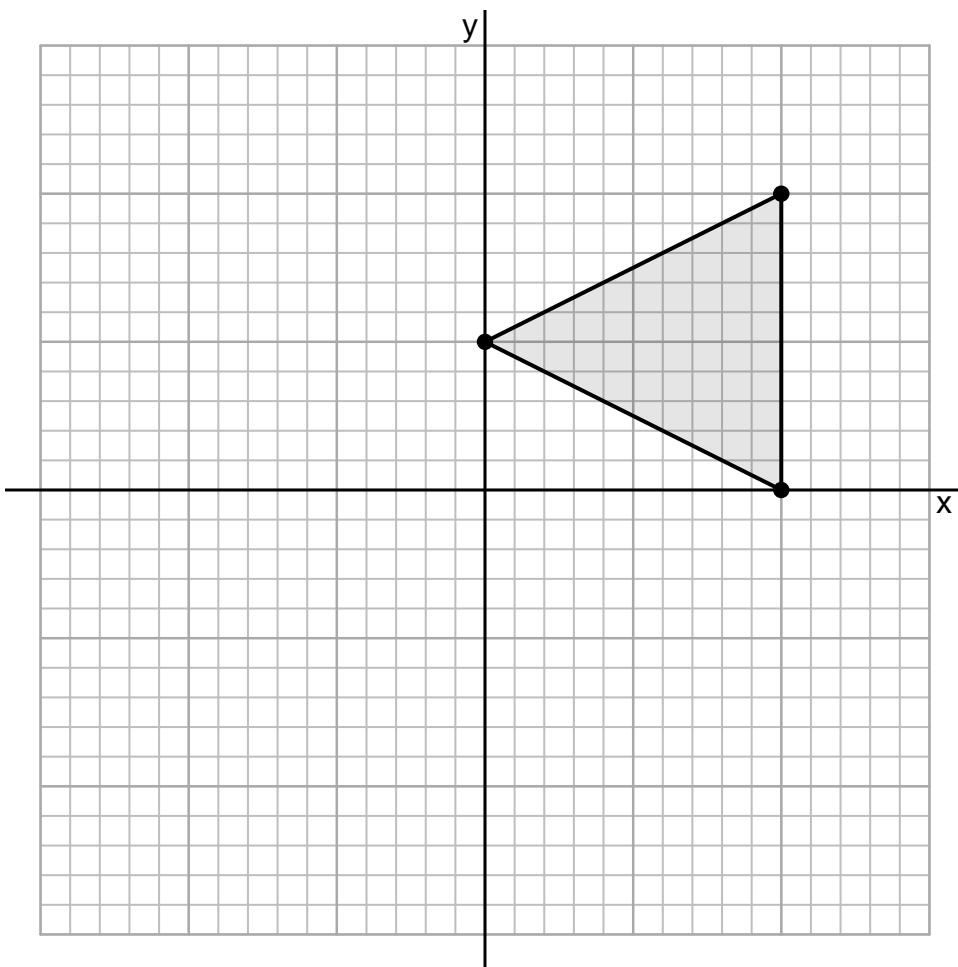


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 10 & 10 & 0 \\ 10 & 0 & 5 \end{bmatrix}$. In order to reflect over the x axis, reflect over the y axis, and then rotate by 53.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.6 & 0.8 \\ -0.8 & -0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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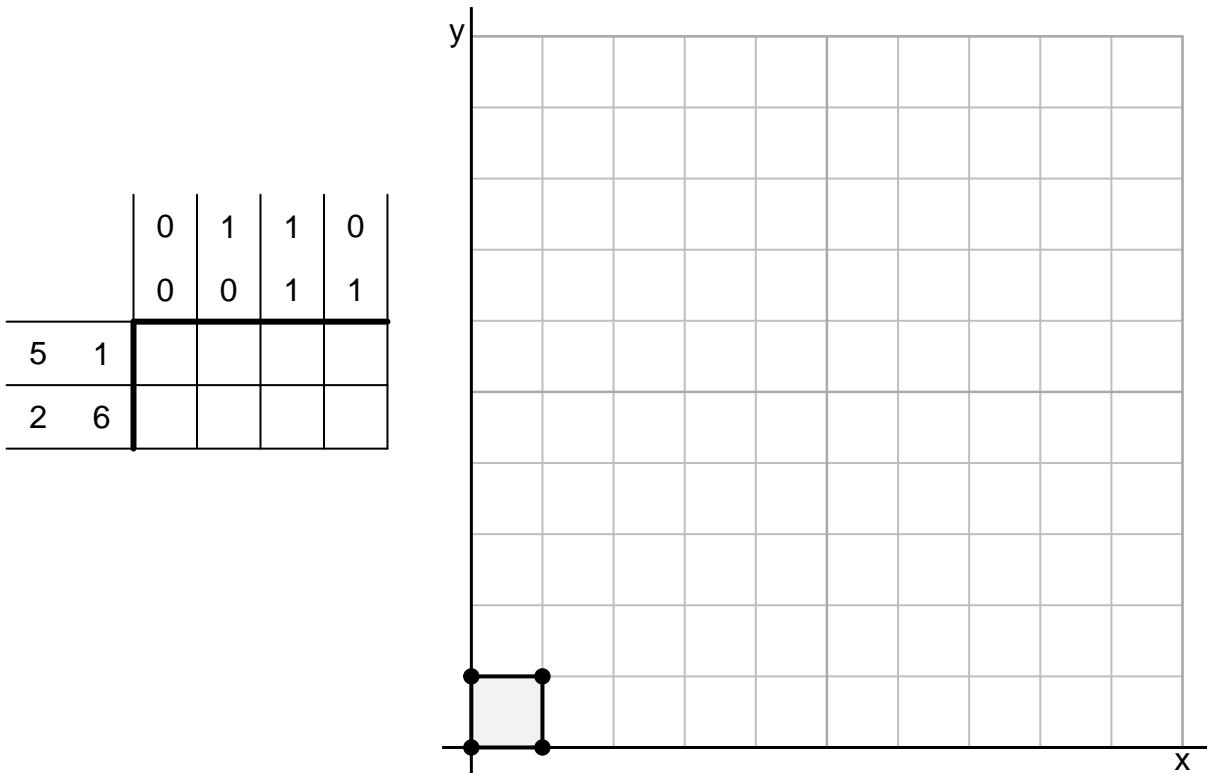
s19 Matrix Exam (practice v138)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 5 & 1 \\ 2 & 6 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

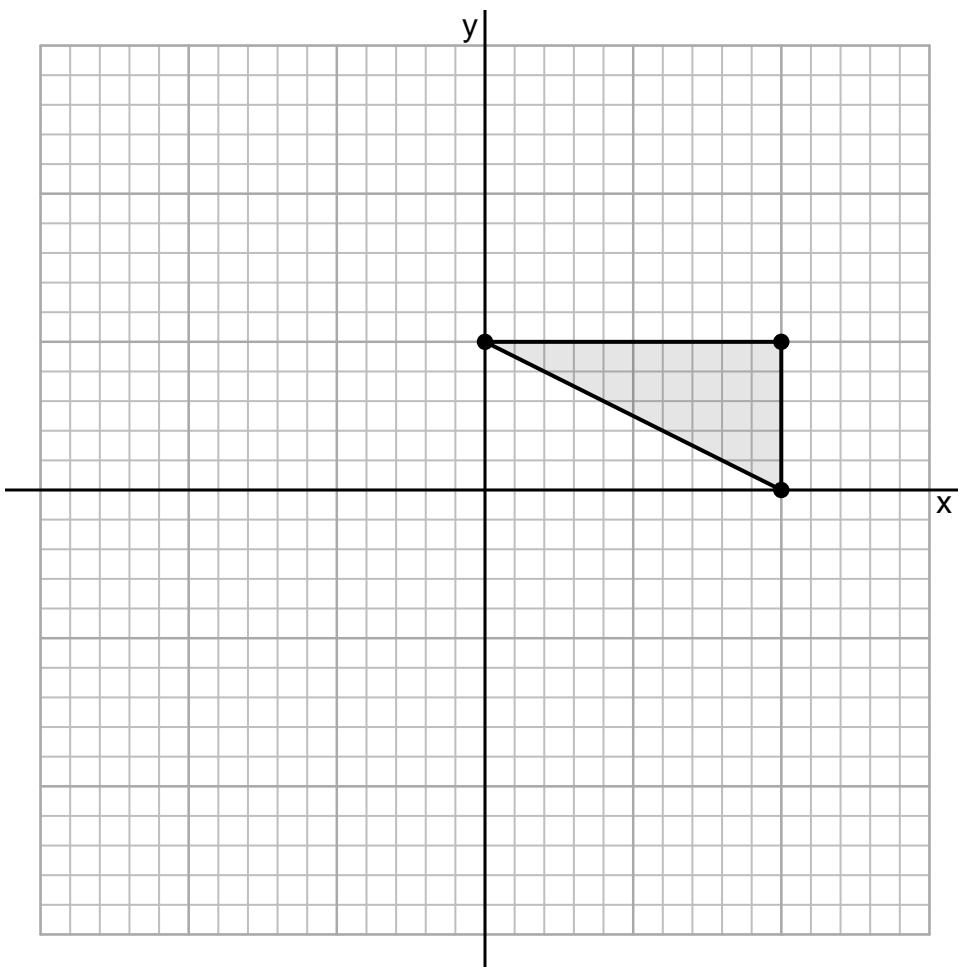


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 10 & 0 & 10 \\ 5 & 5 & 0 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 306.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} 0.6 & -0.8 \\ -0.8 & -0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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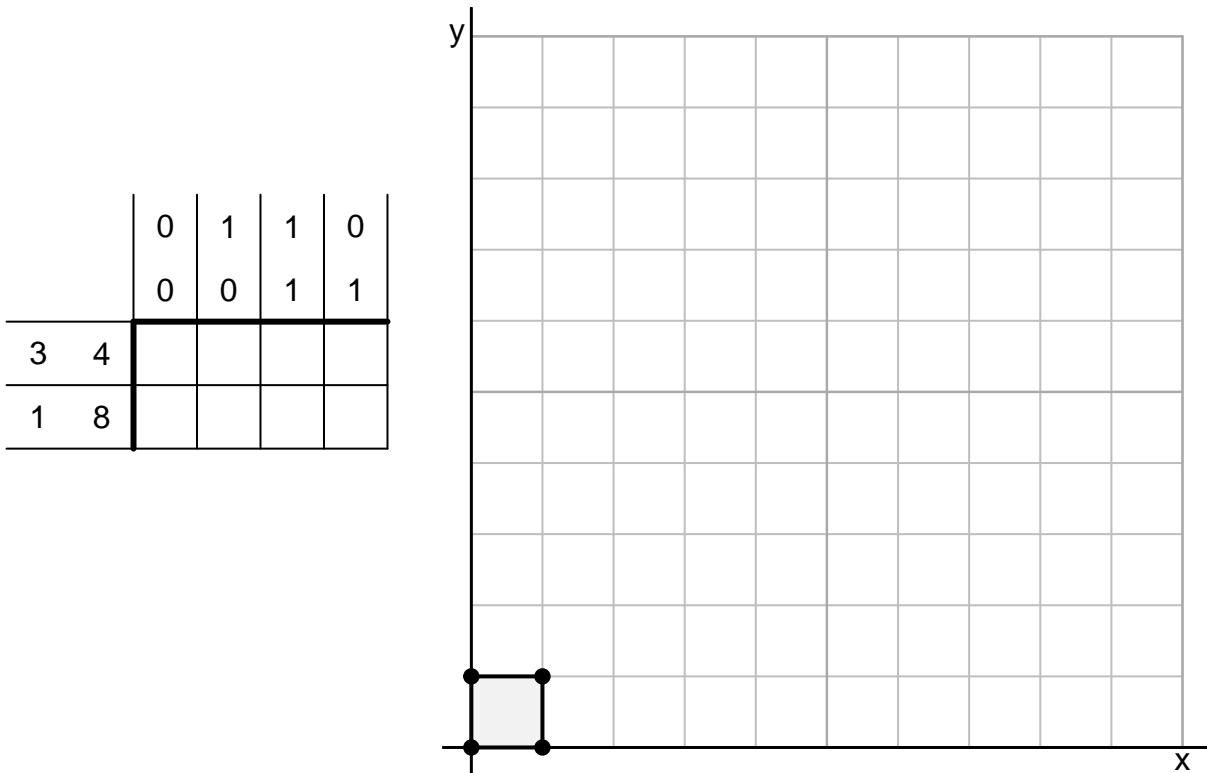
s19 Matrix Exam (practice v139)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 3 & 4 \\ 1 & 8 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

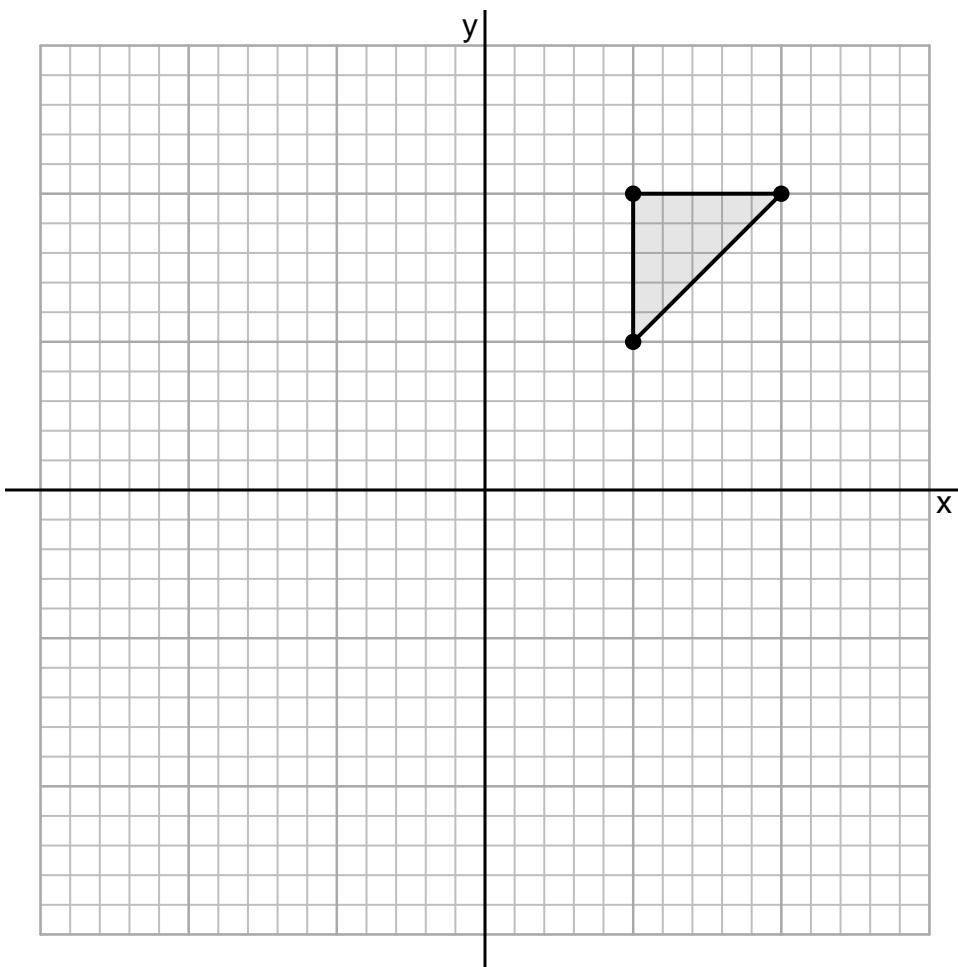


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 5 & 5 & 10 \\ 5 & 10 & 10 \end{bmatrix}$. In order to reflect over the x axis, reflect over the y axis, and then rotate by 323.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.8 & -0.6 \\ 0.6 & -0.8 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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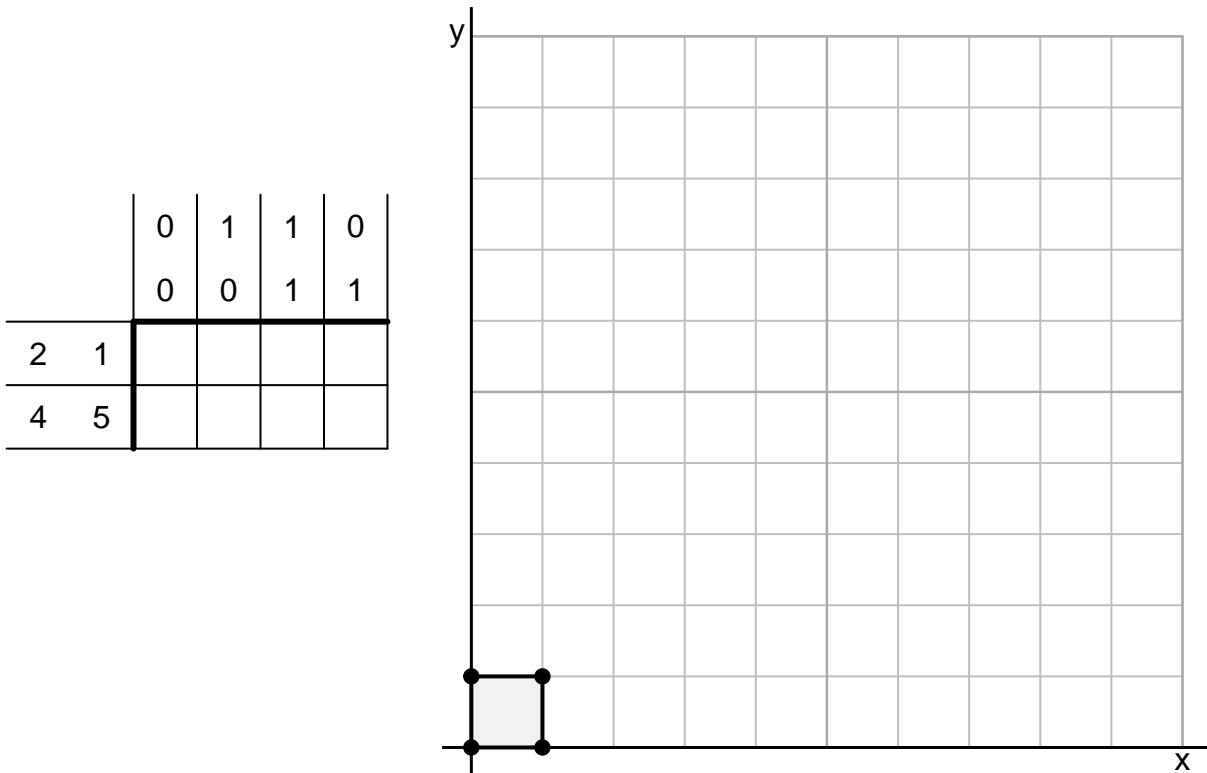
s19 Matrix Exam (practice v140)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 2 & 1 \\ 4 & 5 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

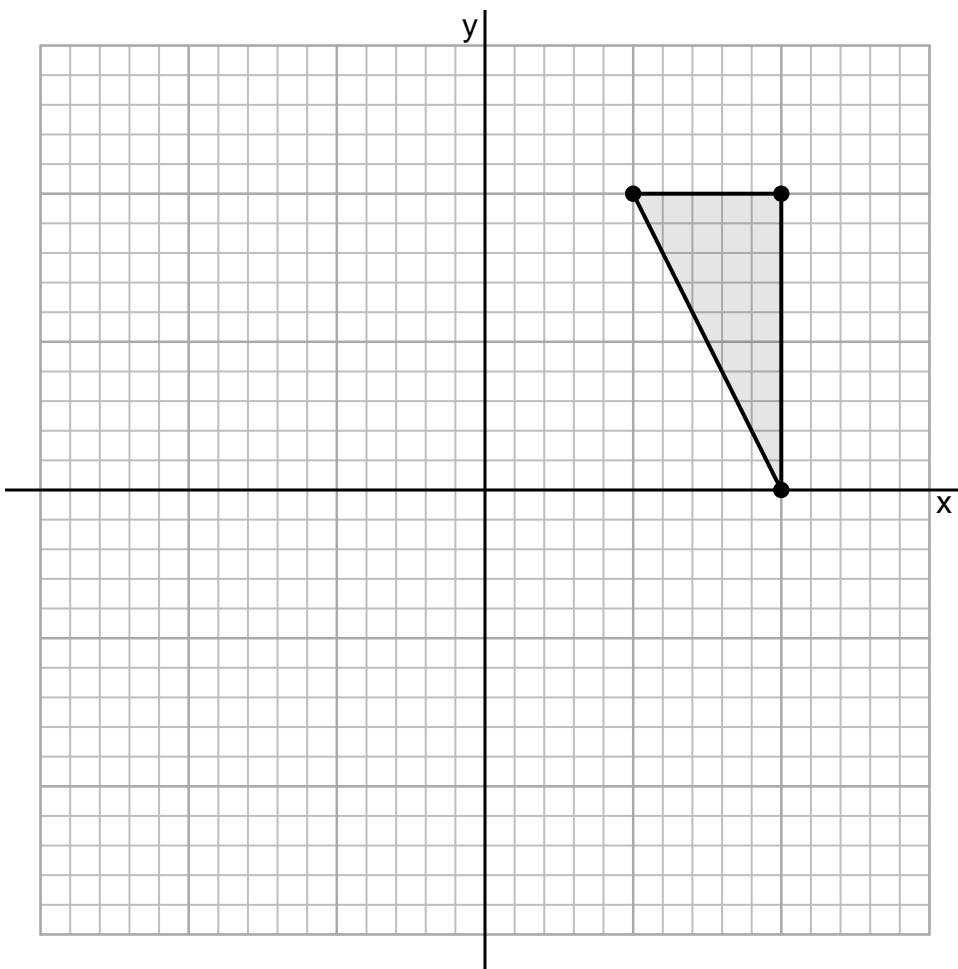


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 10 & 5 & 10 \\ 10 & 10 & 0 \end{bmatrix}$. In order to reflect over the x axis, reflect over the y axis, and then rotate by 306.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.6 & -0.8 \\ 0.8 & -0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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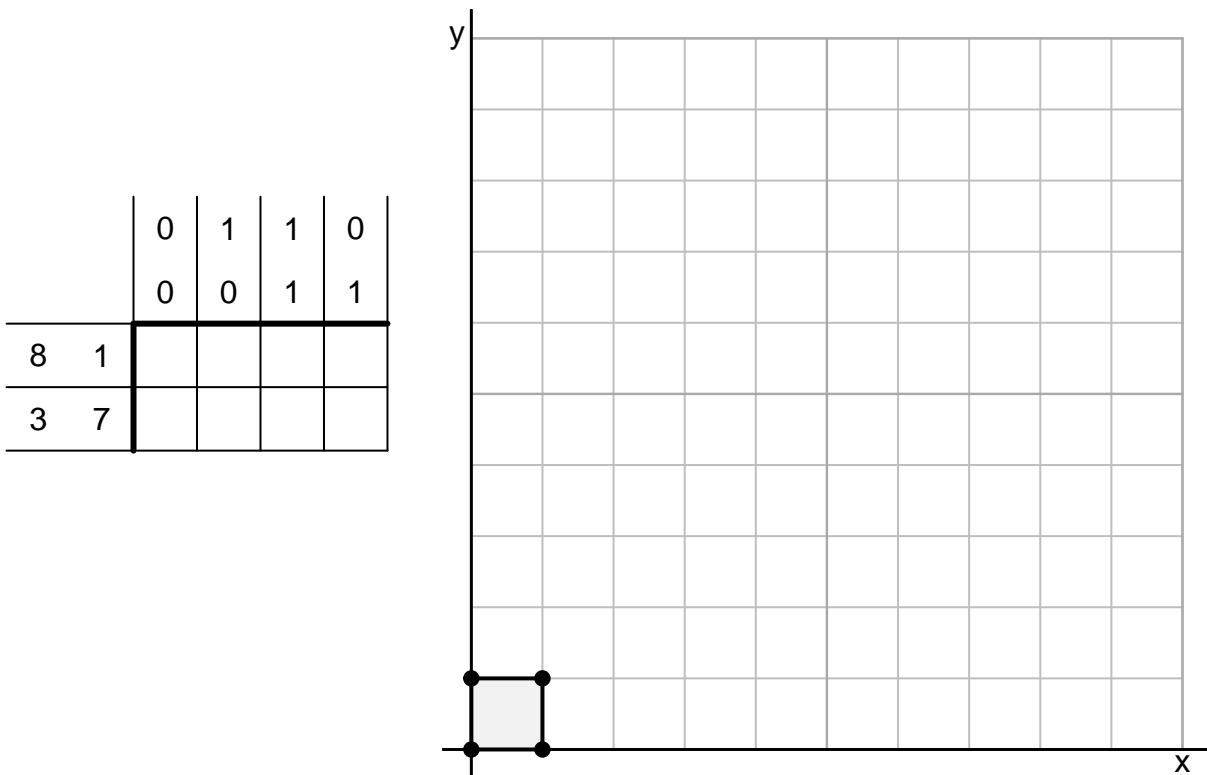
s19 Matrix Exam (practice v141)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 8 & 1 \\ 3 & 7 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

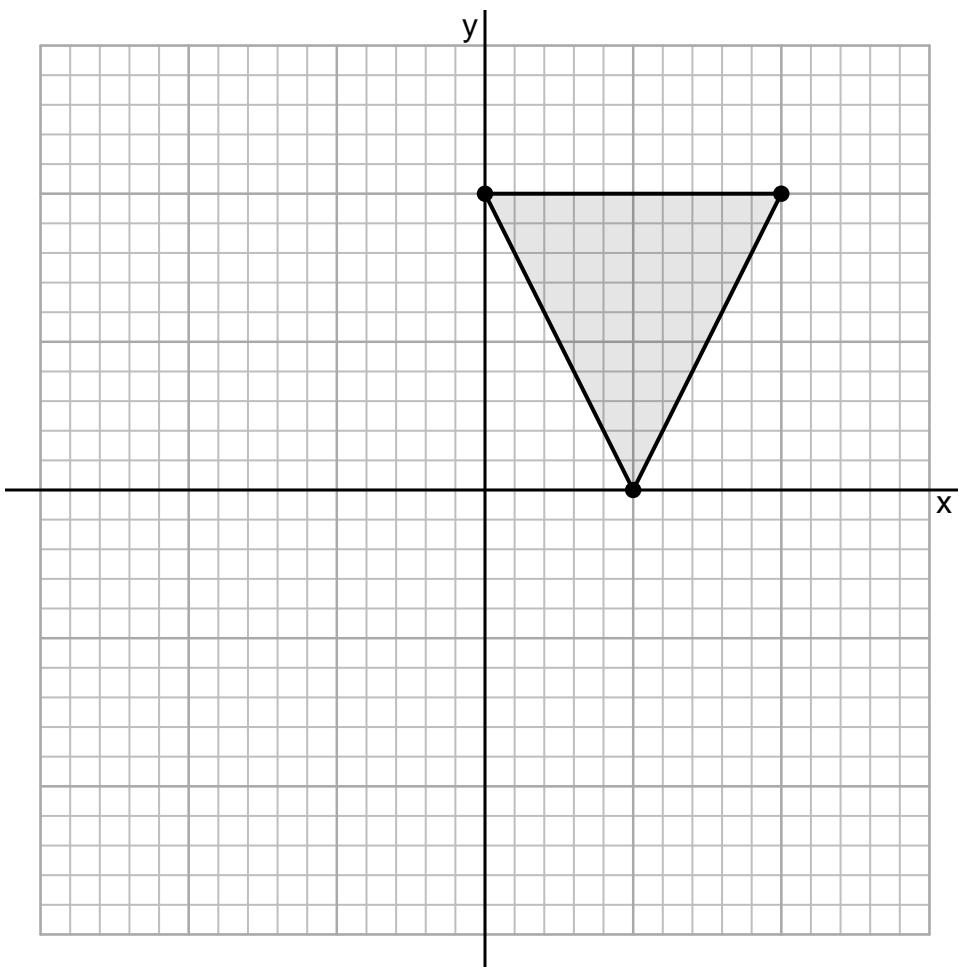


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 0 & 10 & 5 \\ 10 & 10 & 0 \end{bmatrix}$. In order to reflect over the y axis and then rotate by 53.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.6 & -0.8 \\ -0.8 & 0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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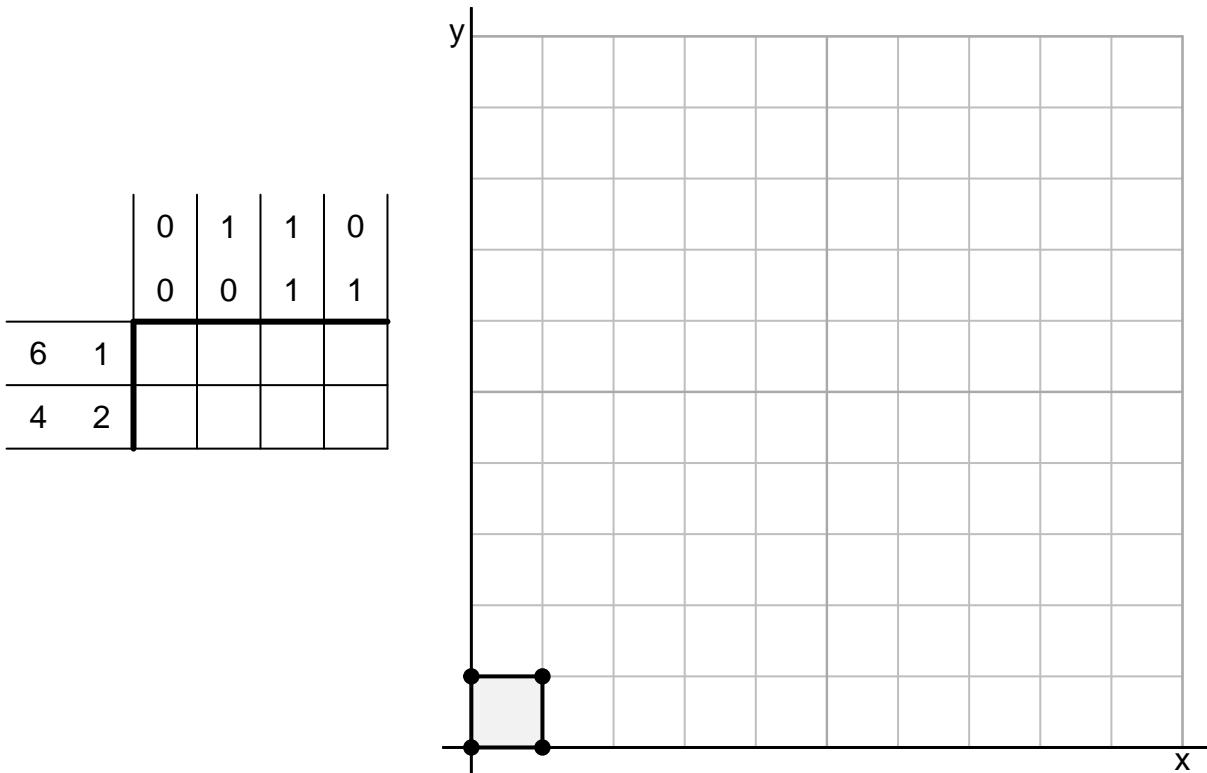
s19 Matrix Exam (practice v142)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 6 & 1 \\ 4 & 2 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

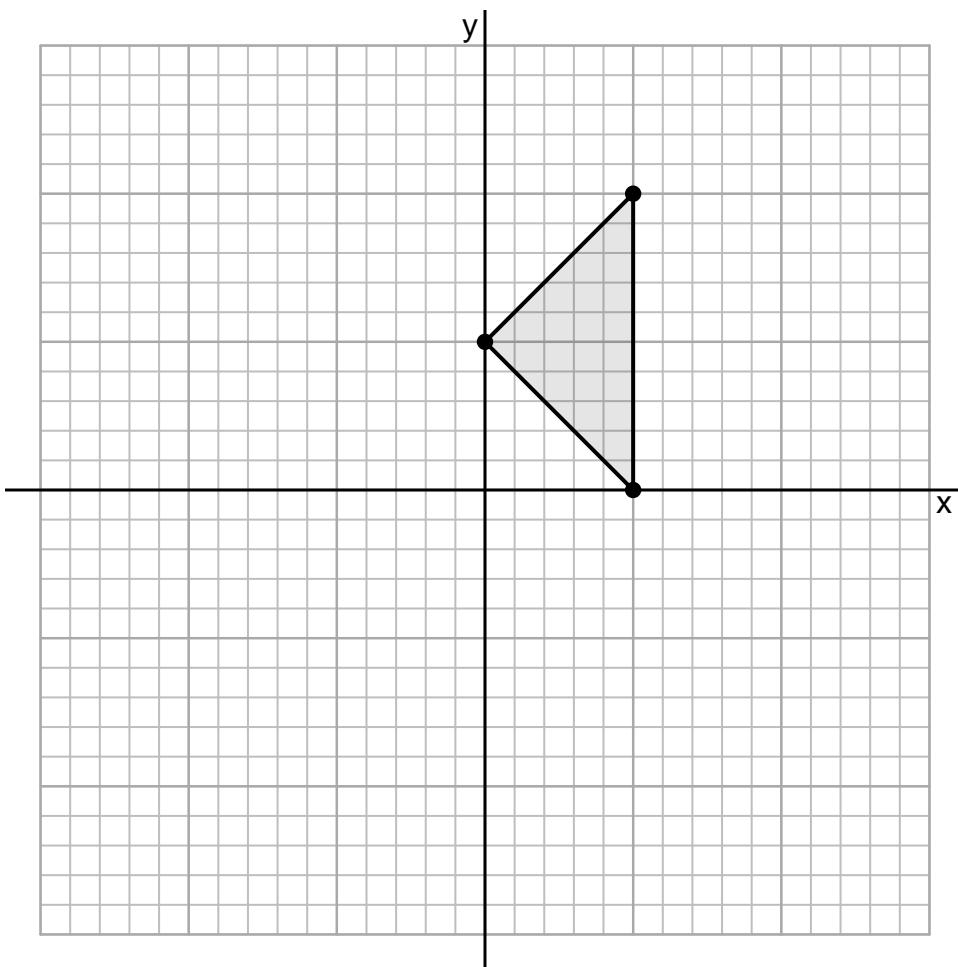


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 0 & 5 & 5 \\ 5 & 10 & 0 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 306.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} 0.6 & -0.8 \\ -0.8 & -0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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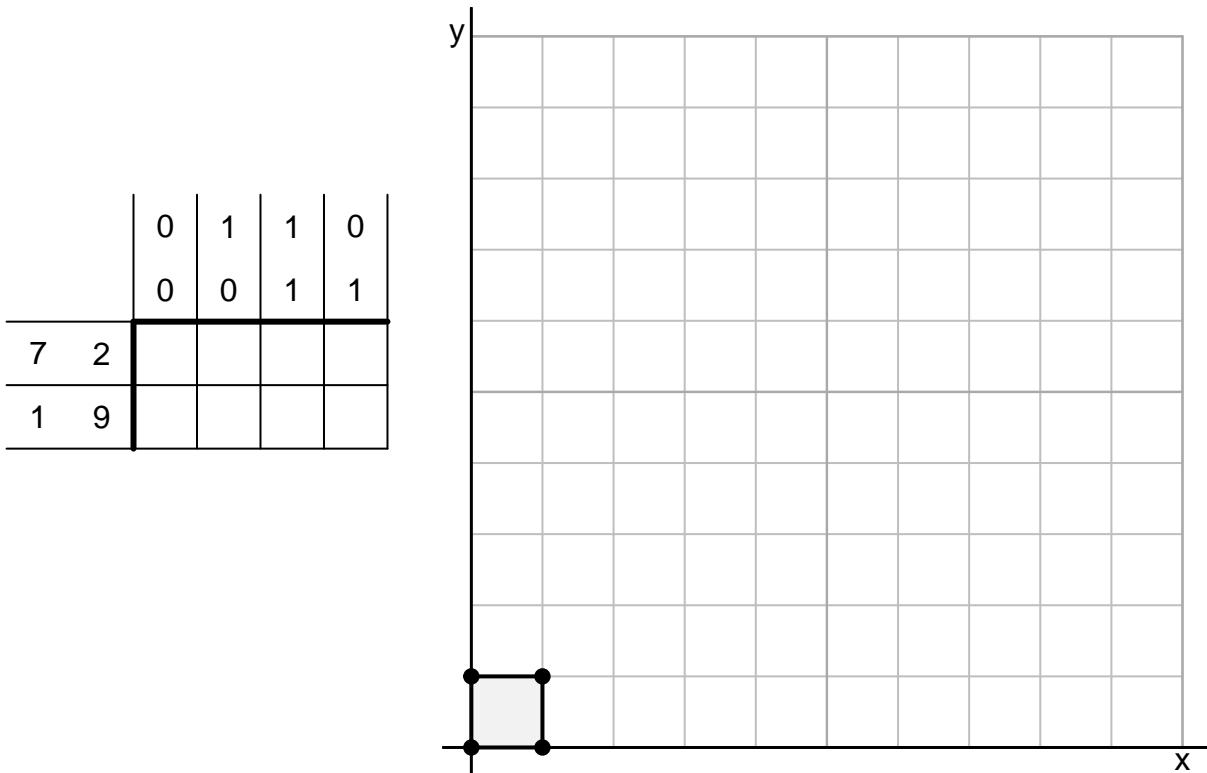
s19 Matrix Exam (practice v143)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 7 & 2 \\ 1 & 9 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

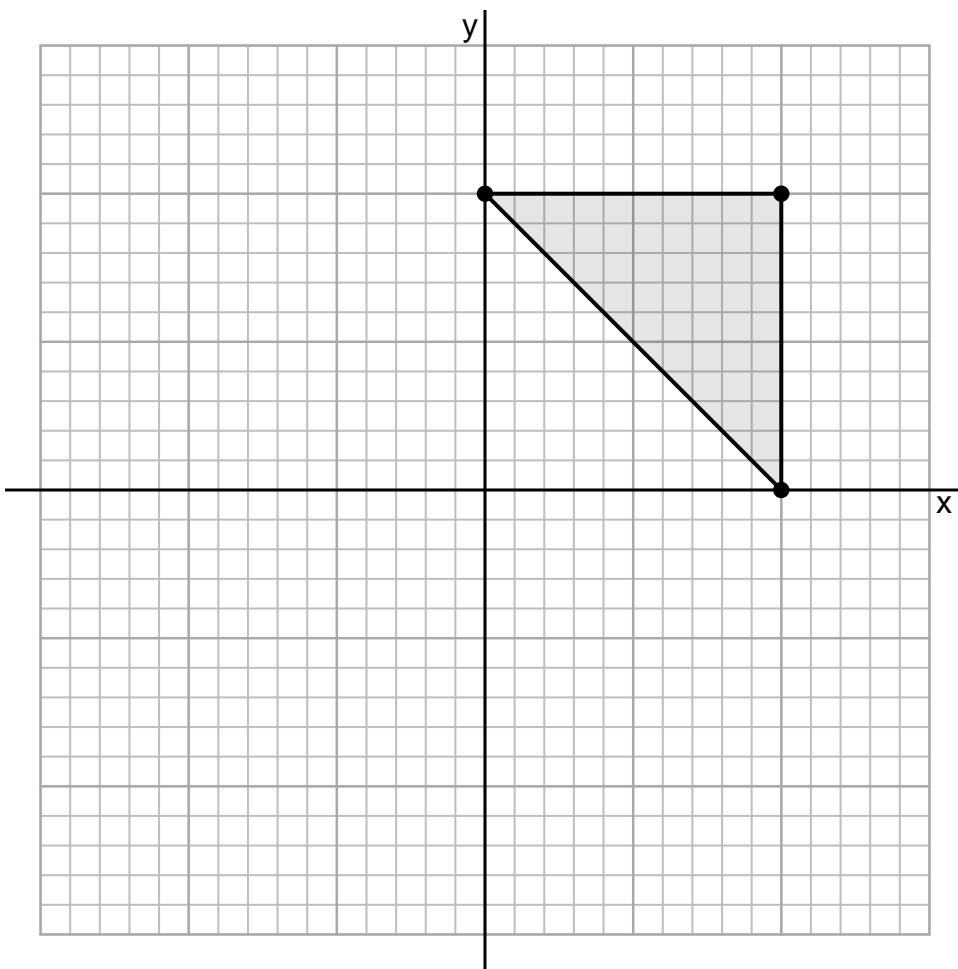


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 0 & 10 & 10 \\ 10 & 10 & 0 \end{bmatrix}$. In order to reflect over the x axis, reflect over the y axis, and then rotate by 53.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.6 & 0.8 \\ -0.8 & -0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



Name: _____

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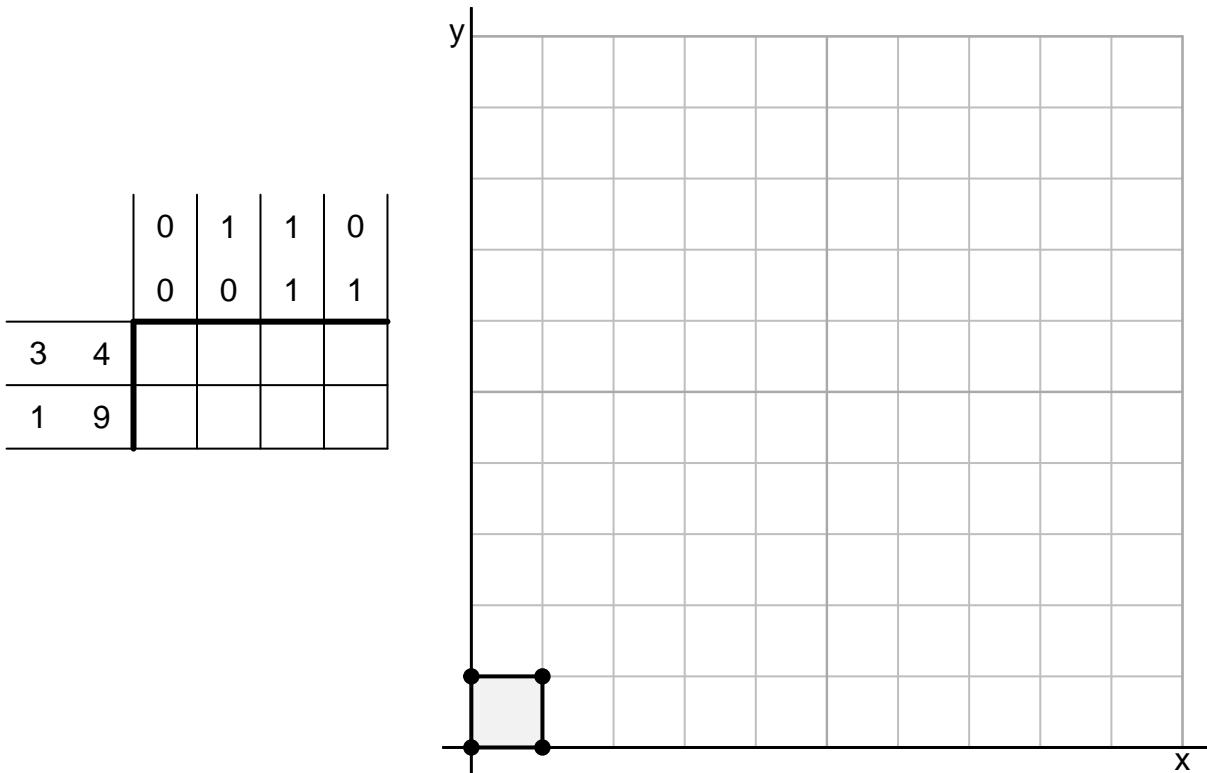
s19 Matrix Exam (practice v144)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 3 & 4 \\ 1 & 9 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

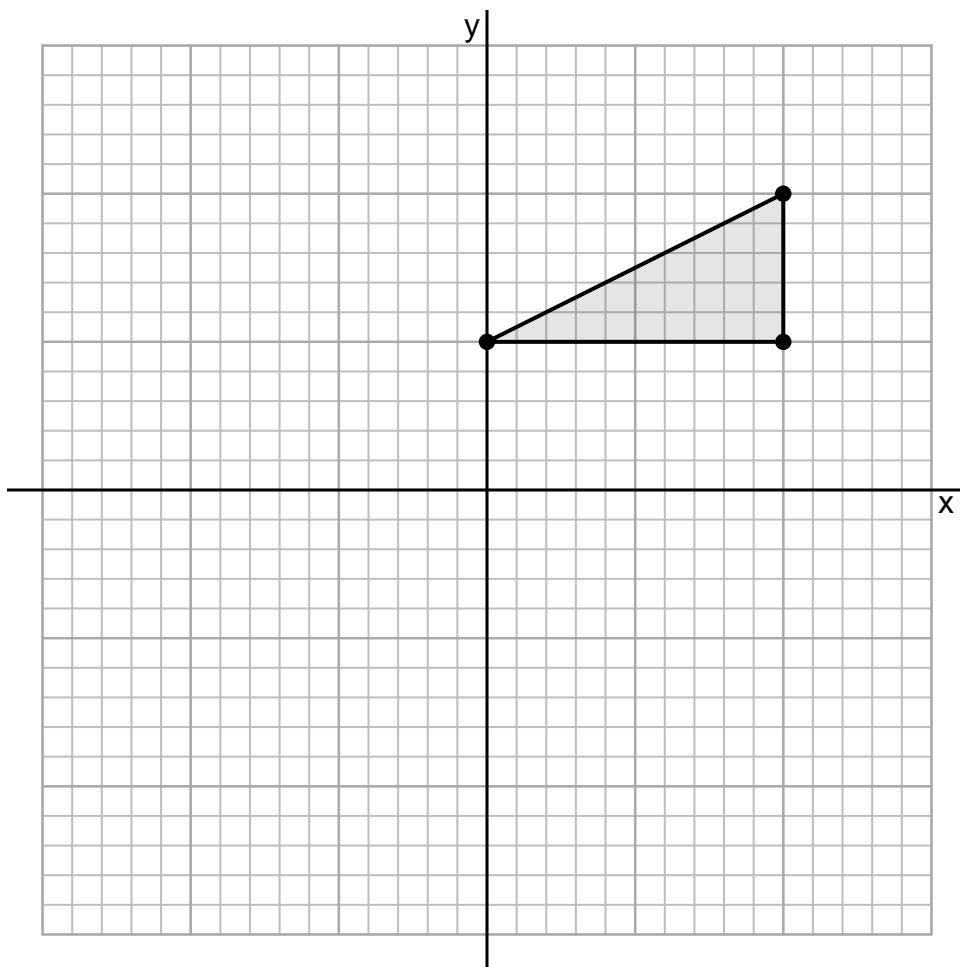


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 10 & 0 & 10 \\ 10 & 5 & 5 \end{bmatrix}$. In order to reflect over the x axis, reflect over the y axis, and then rotate by 306.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.6 & -0.8 \\ 0.8 & -0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



Name: _____

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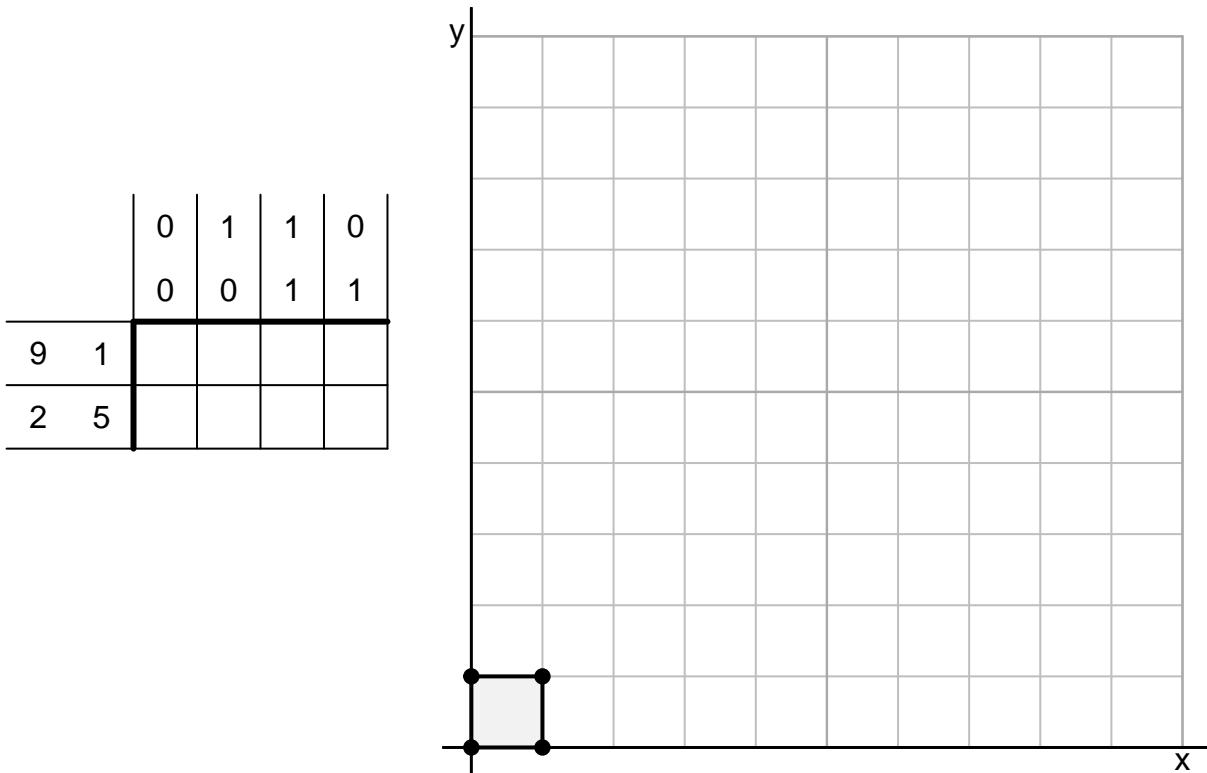
s19 Matrix Exam (practice v145)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 9 & 1 \\ 2 & 5 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

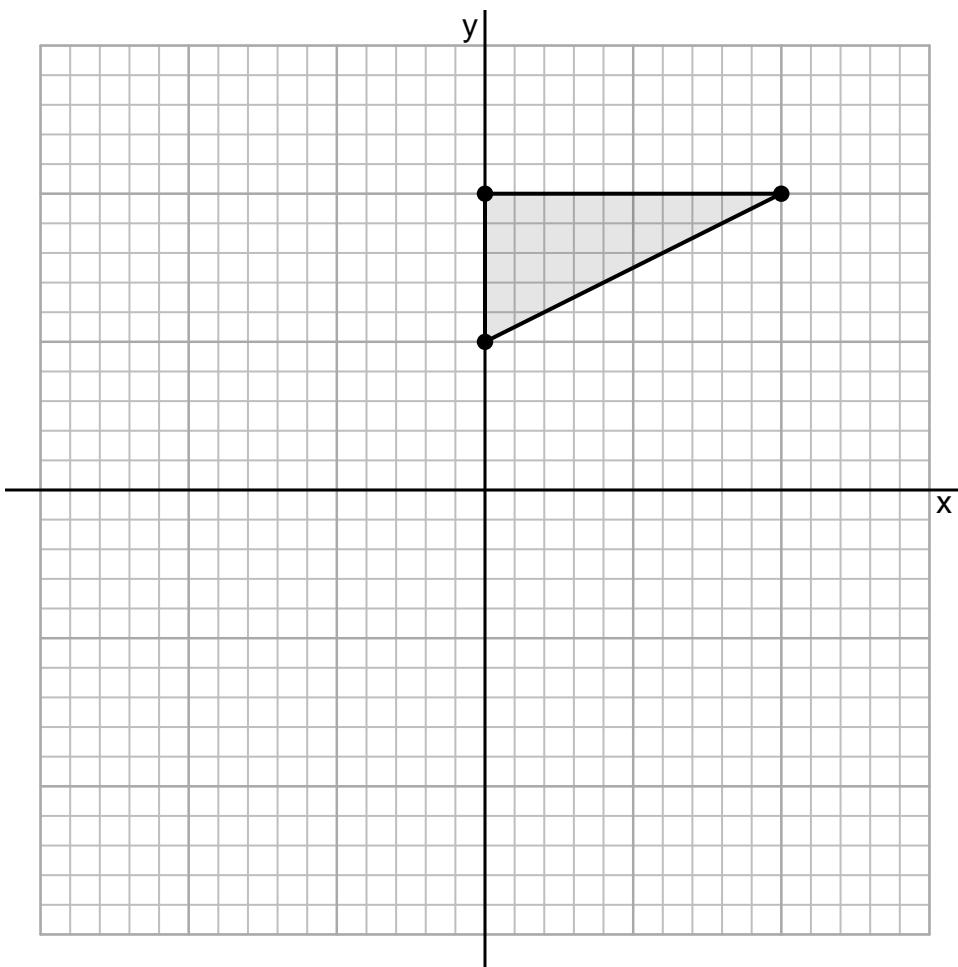


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 0 & 10 & 0 \\ 10 & 10 & 5 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 323.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} 0.8 & -0.6 \\ -0.6 & -0.8 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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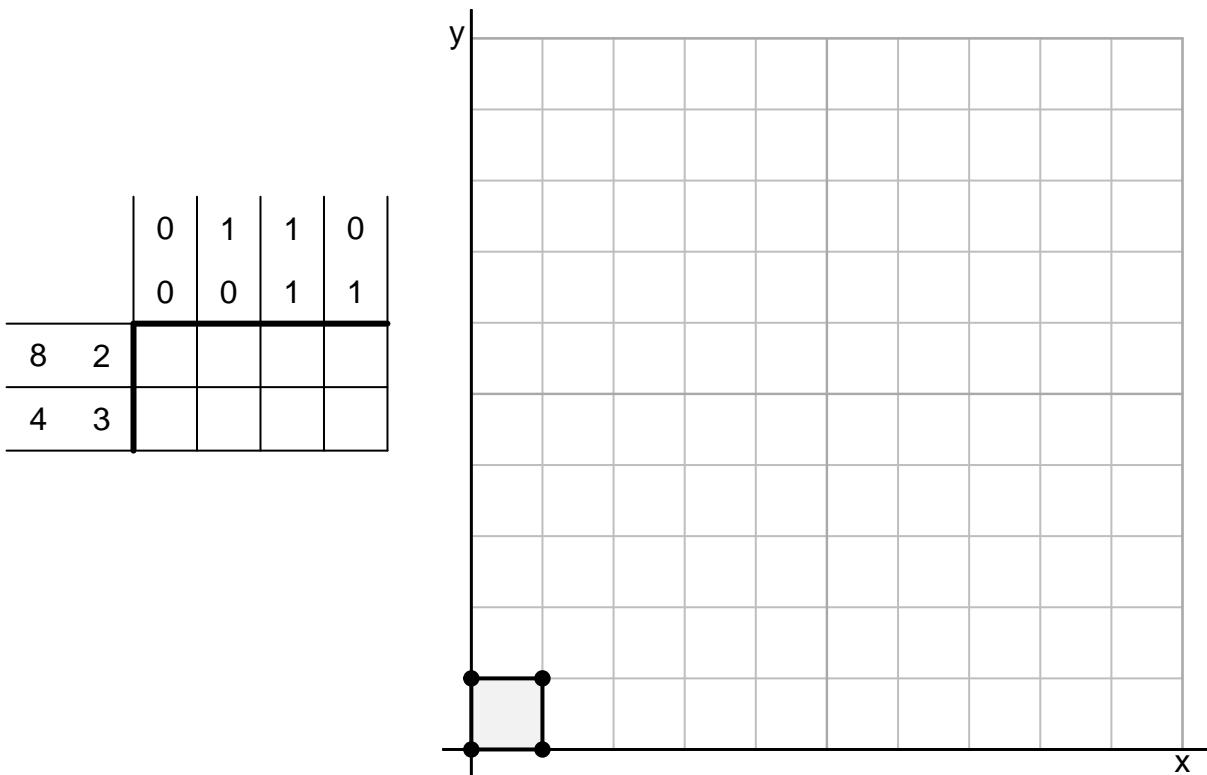
s19 Matrix Exam (practice v146)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 8 & 2 \\ 4 & 3 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

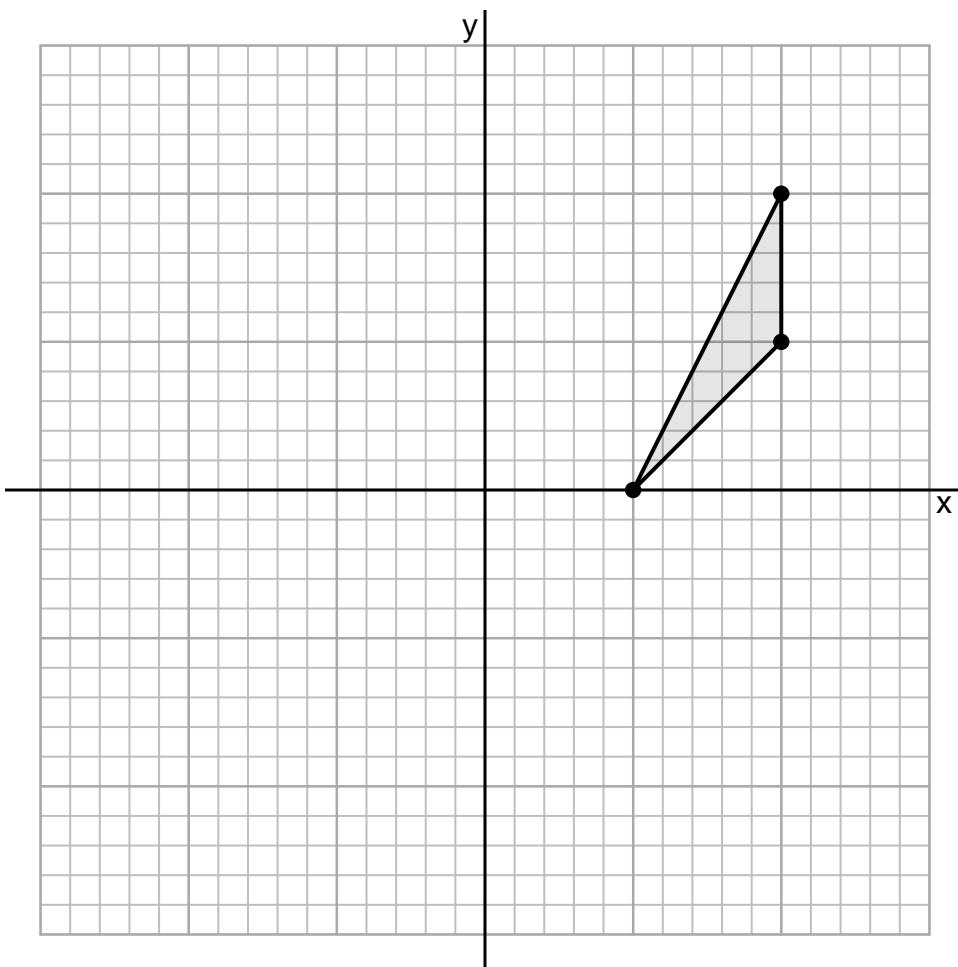


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 5 & 10 & 10 \\ 0 & 5 & 10 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 233.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.6 & -0.8 \\ -0.8 & 0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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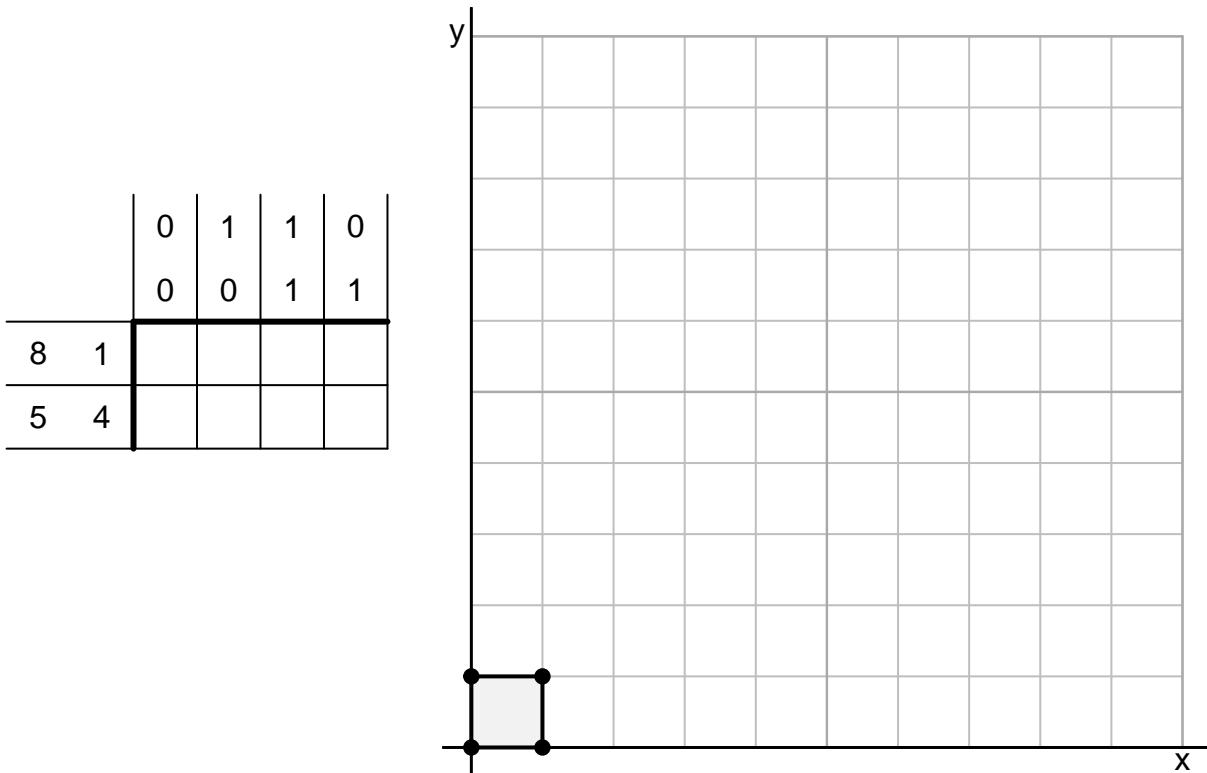
s19 Matrix Exam (practice v147)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 8 & 1 \\ 5 & 4 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

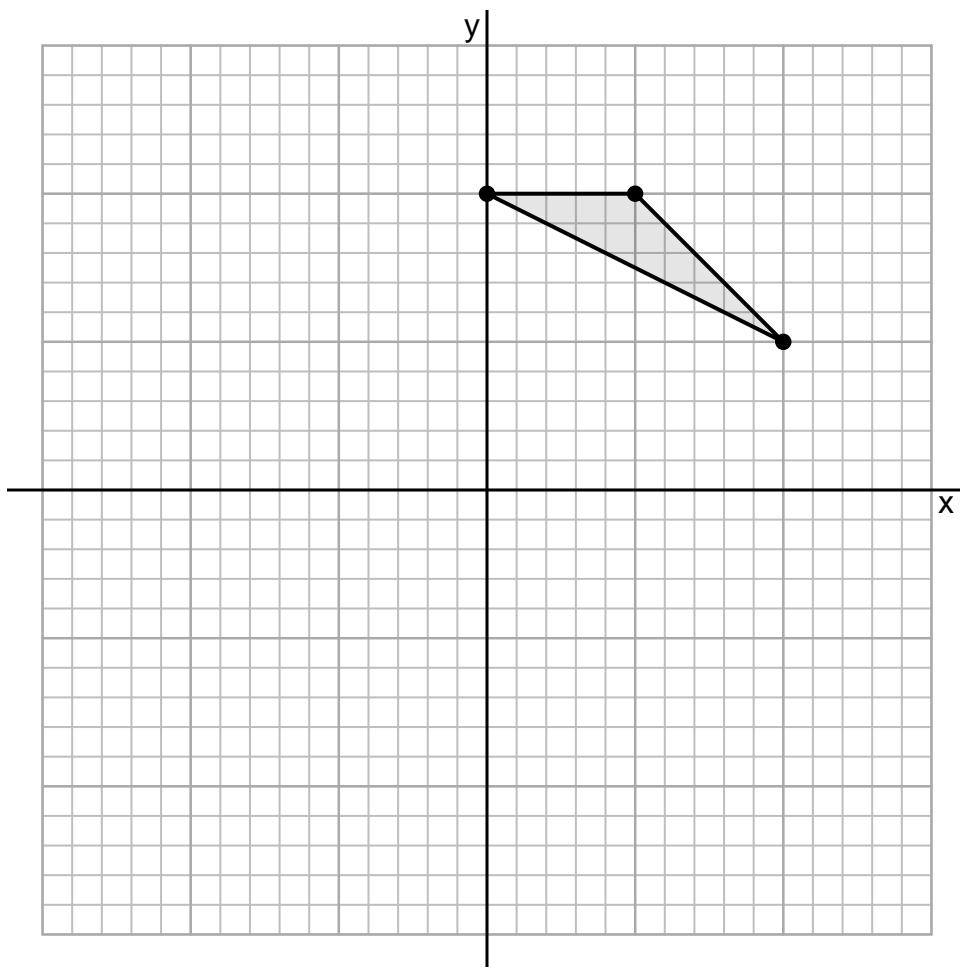


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 0 & 5 & 10 \\ 10 & 10 & 5 \end{bmatrix}$. In order to reflect over the x axis, reflect over the y axis, and then rotate by 53.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.6 & 0.8 \\ -0.8 & -0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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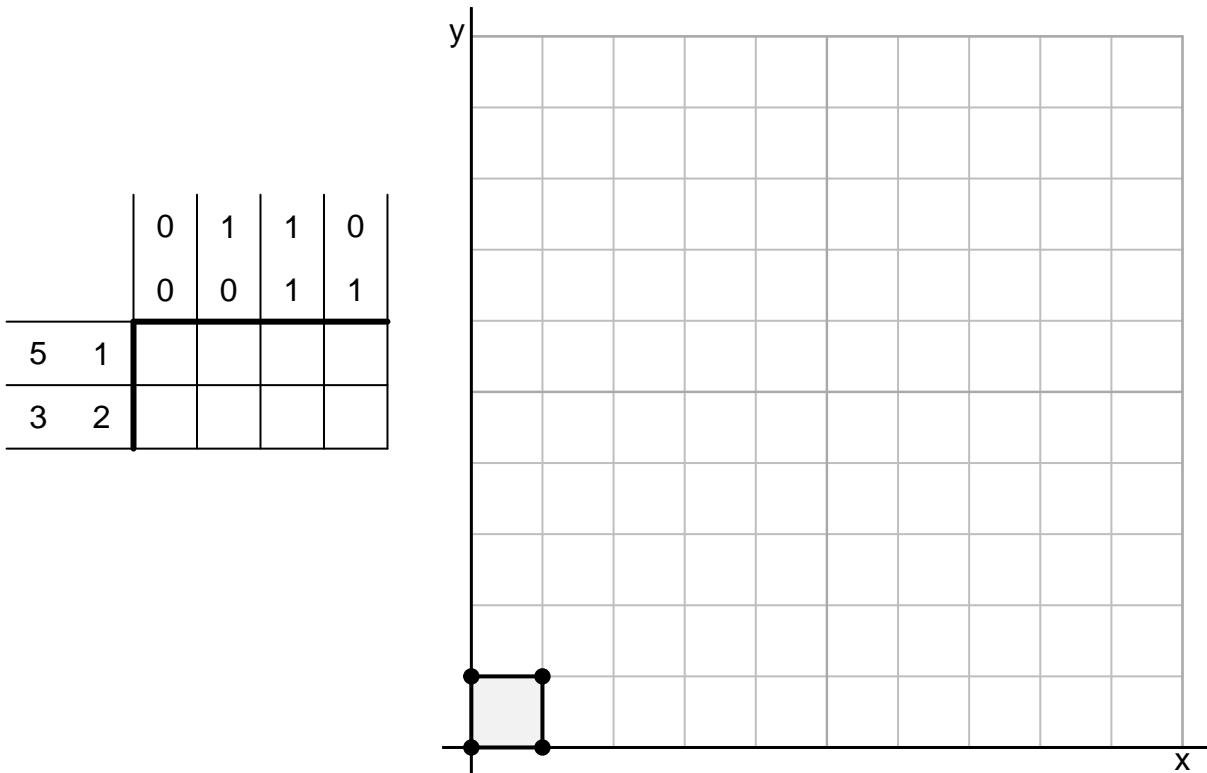
s19 Matrix Exam (practice v148)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 5 & 1 \\ 3 & 2 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

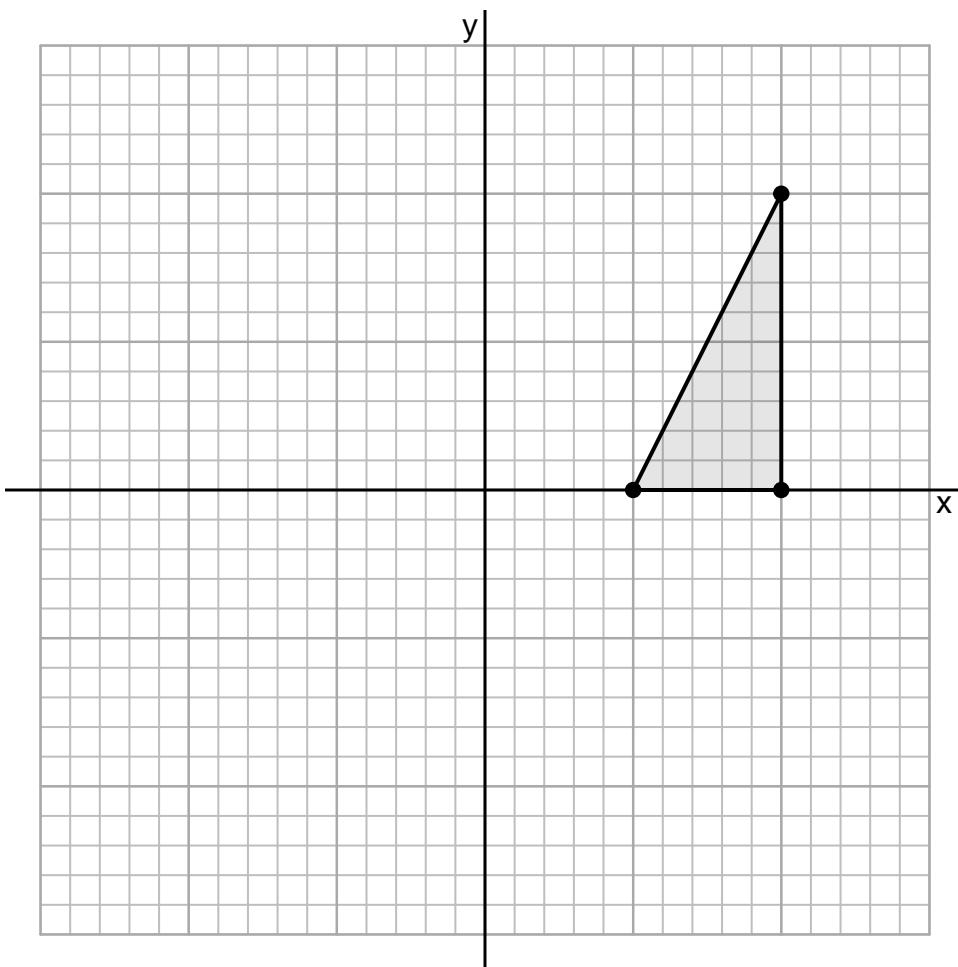


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 10 & 10 & 5 \\ 10 & 0 & 0 \end{bmatrix}$. In order to reflect over the x axis, reflect over the y axis, and then rotate by 36.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} -0.8 & 0.6 \\ -0.6 & -0.8 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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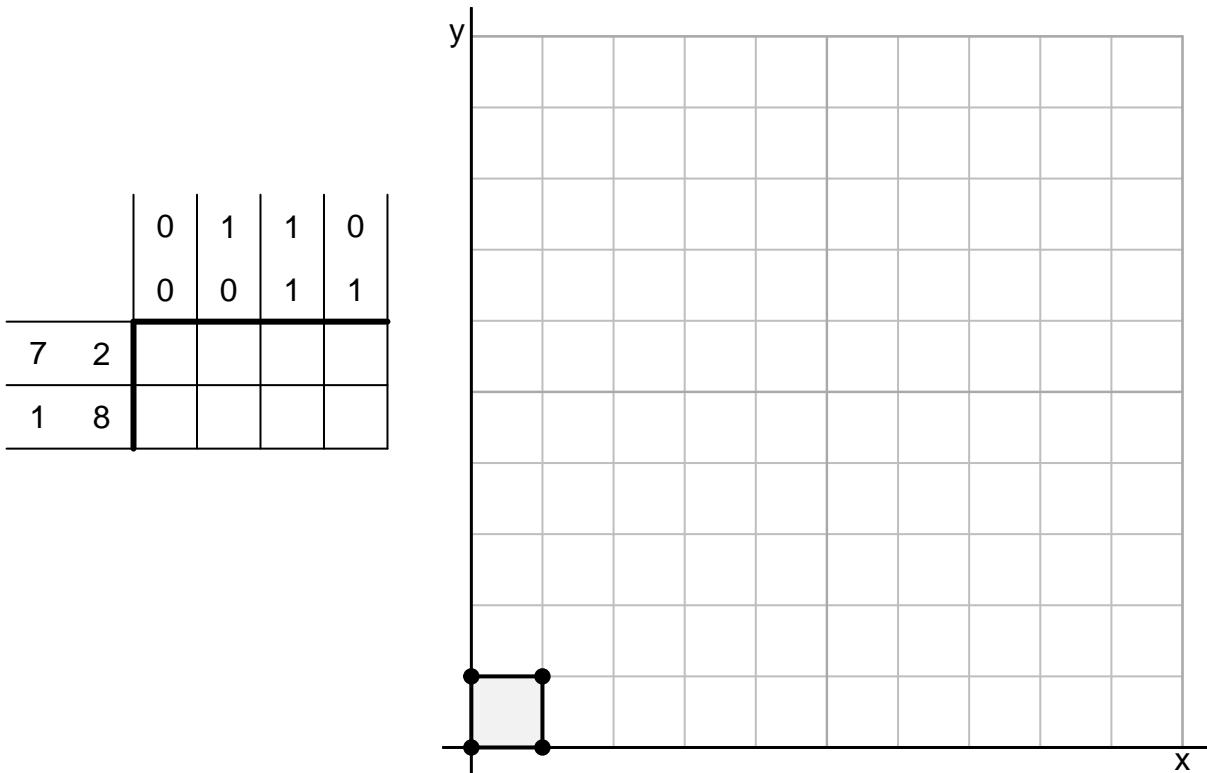
s19 Matrix Exam (practice v149)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 7 & 2 \\ 1 & 8 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.

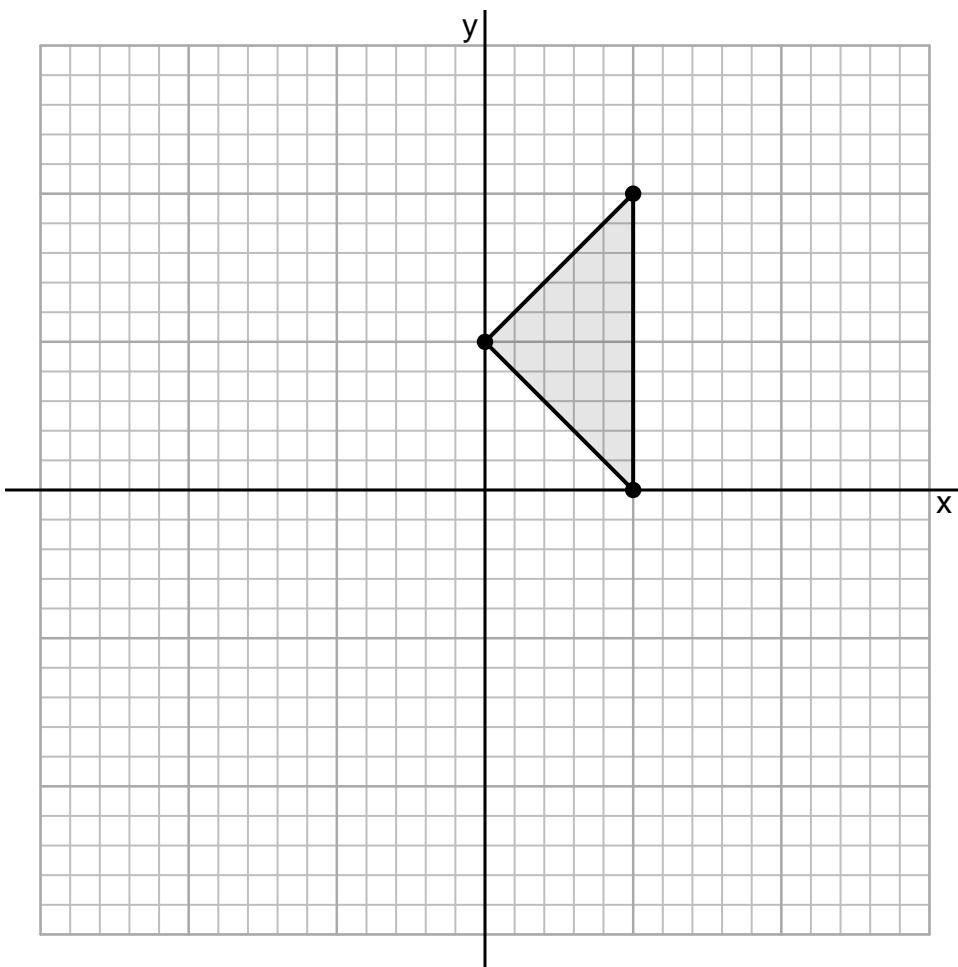


2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 0 & 5 & 5 \\ 5 & 10 & 0 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 323.13° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} 0.8 & -0.6 \\ -0.6 & -0.8 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.



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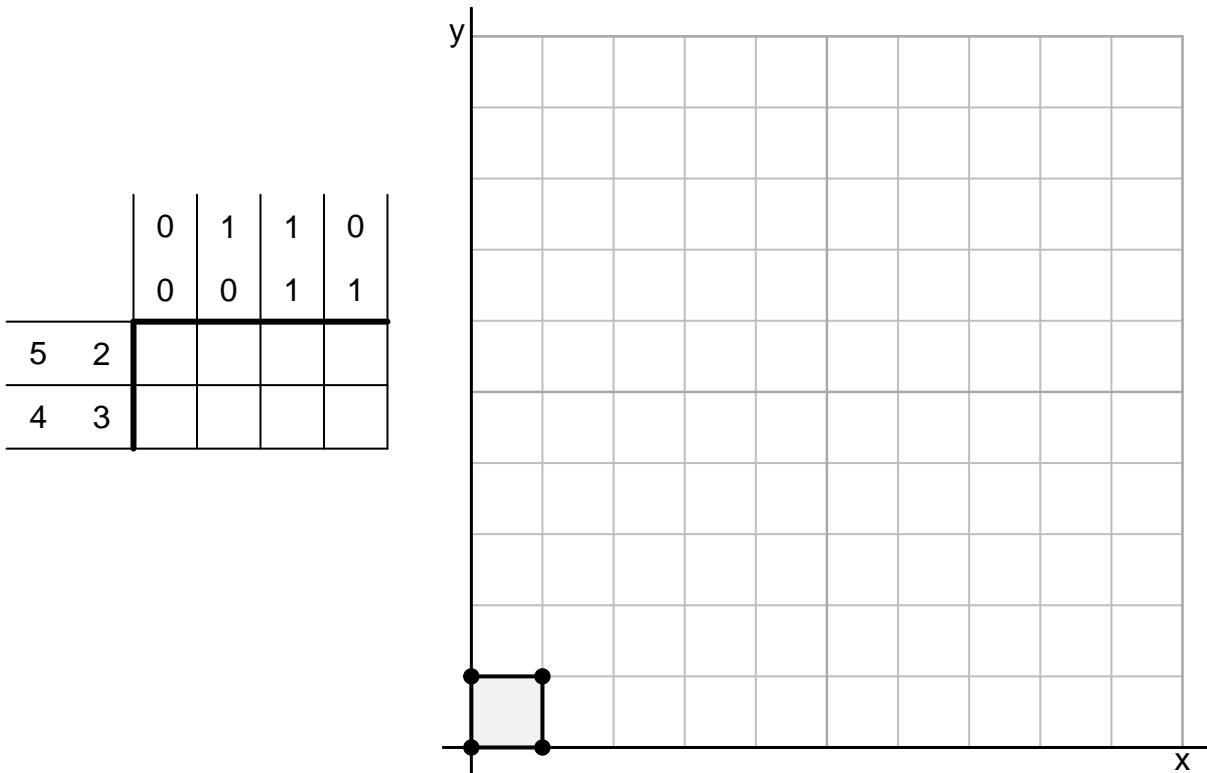
s19 Matrix Exam (practice v150)

Let the 2×4 matrix U represent four points in the xy -plane (so each column represents a point). When those four points are connected as a convex polygon, matrix U represents a unit square. Also, let the 2×2 matrix L represent a linear transformation.

$$U = \begin{bmatrix} 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 \end{bmatrix} \quad L = \begin{bmatrix} 5 & 2 \\ 4 & 3 \end{bmatrix}$$

Let matrix $P = L \cdot U$, so P is found by matrix multiplication of L times U . Matrix P also represents 4 points of a polygon. Use the diagram below to calculate the elements of P . Then, draw the polygon represented by matrix P on the xy -plane below. Notice I have already drawn the unit square represented by matrix U .

1. Multiply $L \cdot U$ and draw resulting polygon.



2. What is the area of the convex polygon represented by matrix P ? *Hint: the area equals the absolute value of the determinant of matrix L .*

The triangle shown below is composed of the three points represented by matrix $A = \begin{bmatrix} 10 & 10 & 5 \\ 5 & 10 & 5 \end{bmatrix}$. In order to reflect over the x axis and then rotate by 306.87° counterclockwise we can multiply by the transformation matrix $R = \begin{bmatrix} 0.6 & -0.8 \\ -0.8 & -0.6 \end{bmatrix}$.

3. Calculate the matrix $R \cdot A$.

4. Draw the triangle represented by $R \cdot A$.

